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Map of Asia and Adjacent Areas

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THE NATIONAL GEOGRAPHIC MAGAZINE

Long Island Outgrows the Country

BY HOWELL WALKER

With Illustrations by National Geographic Photographer B. Anthony Stewart

"SOME PEOPLE still think of Long Island as a sandy strip of shore line off New York with a lighthouse on one end and Brooklyn on the other."

So one of the island's five million residents recently told me. Yet this slim stretch of land under the very nose of the country's greatest metropolis is one of the fastest-growing regions of the United States. In the last few years the population of its so-called rural counties has increased more rapidly than New York City's or the Nation's as a whole.

Here on Long Island multiple housing developments mushroom. Along with them sprout streamlined factories and modern shopping centers, transport and recreational facilities. Much of the activity burgeons where it seems only yesterday myriad acres of potatoes grew.

Between Long Island and New York's towers, hundreds of trainloads of white-collar commuters daily ebb and flow. Increasing thousands call the island home, and many now earn a living in its hundreds of new industries.

631 Trains Daily Carry Suburbanites

Not quite as flat as a flounder, Long Island on a map resembles a big fish nosing into New York Bay. Its forked tail reaches 120 miles out to sea; its highest hill rises only 410 feet above the surrounding waters. Long Island Sound washes the north shore and separates it from Connecticut's coast. Against the south shore swell the restless tides of the Atlantic (map, pages 282-3).

Although smaller than Delaware, Long Island has about 16 times as many people as that State. Of the island's four counties, urban Kings and Queens in the west belong to New York City; to the east lie Nassau and Suffolk, with numerous little towns and splendid estates, together with fishing villages, truck farms, growing suburbs, and expanding industries.

Fifteen hundred miles of boulevards, highways, and State parkways cover the island. Operating over 420 miles of lines, the Long Island Rail Road reaches most major points, runs 631 trains daily, and hauls about 92 million passengers a year, thus making it the leading carrier of suburbanites in the United States.

In addition to subway, elevated, trolley, and bus systems, six major airports serve both the island and the New York metropolitan area.

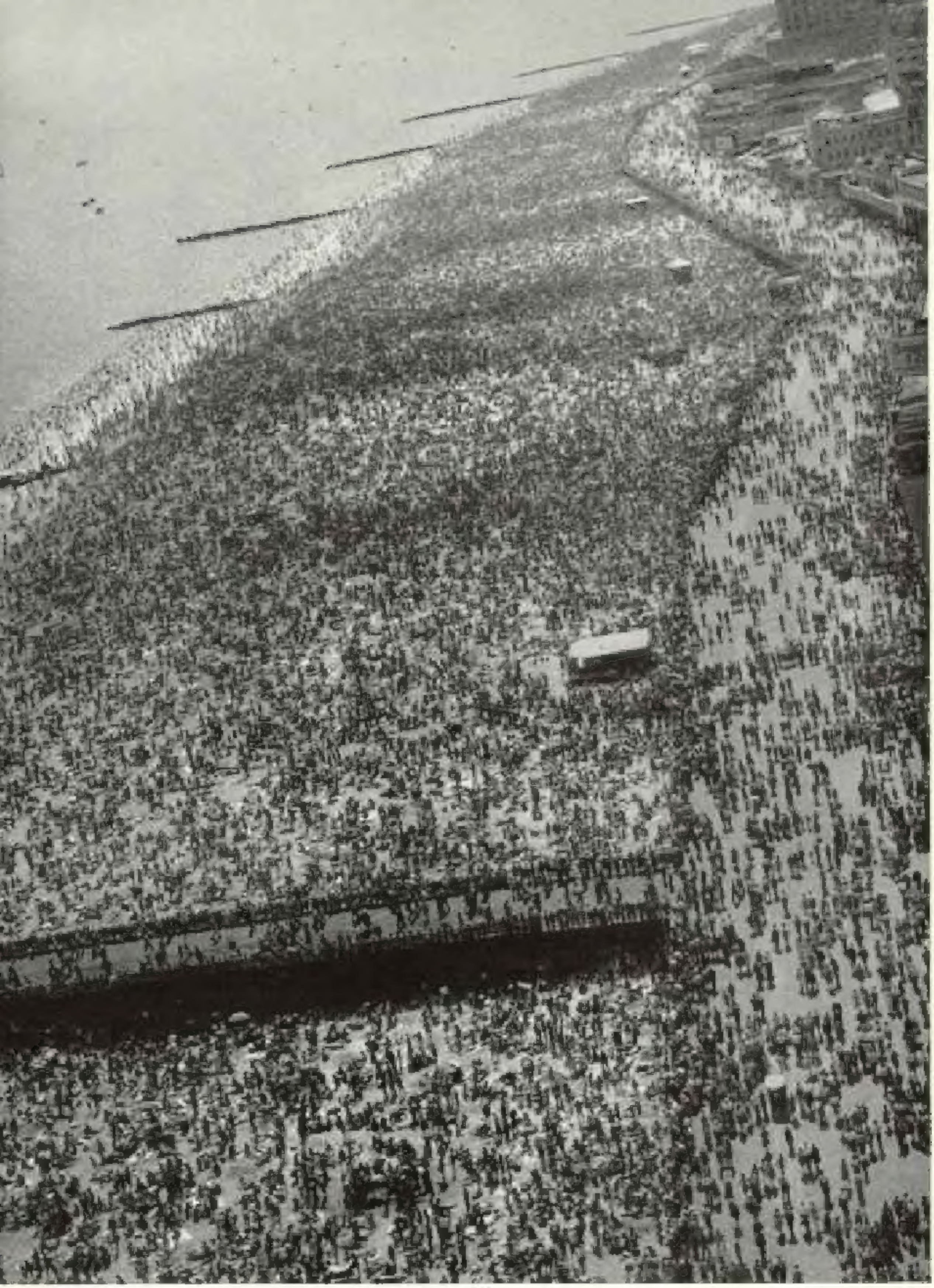
Eight Roads over or under East River

To reach Long Island from Manhattan by automobile, I could have used any of six bridges over the East River or two tunnels which plunge beneath it. The newest—shiny-tiled Brooklyn-Battery Tunnel—opened to traffic in late May of last year (page 288).

I chose the Triborough Bridge, swung onto Grand Central Parkway, and breezed eastward through Queens into Nassau County.

From the congested west end, four-lane parkways stream out like broad ribbons in the wind. Each year they carry more traffic farther eastward as new home and business construction pushes ahead. Cross-island highways link the axial arteries.

Engineers planning these modern highways sometimes turn back a century or two to Indian trails; red men made more topographical sense than their first white successors in laying out lines of communication!



1,300,000 Bathers Obscure Coney Island Sands. Hot-weather Worries Melt Like Ice

Subways, automobiles, and excursion steamers take 70,000,000 pleasure seekers annually to New York's playground by the sea. Stretching along three miles of boardwalk, the resort offers 900 amusements.

A dozen or more small Algonquian tribes were scattered the length of the island. In 1609 they accepted the first foreign intrusion without much fuss; Henry Hudson with a score of men landed, tradition says, on what became known as Coney Island. But Hudson, the Englishman sailing for the Dutch East India Company, didn't linger; he had set his heart on finding a short passage to India.*

For the next 25 years the Indians had Long Island to themselves. Then came Dutch, closely followed by English settlers. European intervention thinned out the aborigines. Smallpox spread with fatal results. Fifty years after the first settlers arrived, histories tell us, a third of the native population had died; by 1761 red men had virtually vanished from large parts of the Island.

Today only one real reminder of the Indian survives: his place names. Villages, towns, coves, bays, hills, roads, and streams still carry them.

Seventeenth-century colonization continued. Around their original holding at Breuckelen, now Brooklyn, Dutch settled in the west; English mostly in the east. International jealousy over land and its government kept the two colonies in a constant squabble. Finally, in 1674, England won complete control of the island.

During the next 100 years, the Island enjoyed relative peace and the homey task of domesticating itself. Farms expanded; villages sprang up; small industries increased; roads took shape; news traveled faster.

The American Revolution split the island folk. The Battle of Long Island, initial engagement in the campaign of 1776, took place at Brooklyn. Well-trained troops led by England's General Howe forced outnumbered Americans under George Washington to retreat across the East River. And the British remained for the duration of the war.

Link with the World—and the Future

Now look at Long Island in 1951, but quickly, before what you see today becomes obsolete tomorrow.

"Only permanent thing around here is the temporary aspect of it all," said an executive of Long Island's newest airport. "And the only monotonous thing about it is the constant change."

To illustrate, he spent part of a morning and a whole afternoon showing me one of the world's largest commercial air terminals. Although far from finished, New York International Airport in southern Queens has already begun to steal La Guardia's thunder as New York's busiest flying field (pages 290, 291).

International Airport, formerly known as Idlewild, covers a reclaimed area equal to all of Manhattan from 42d Street to the Battery, or about 4,900 acres. We saw 10 miles of runways and three gigantic hangars, each with a floor the size of a football field. Of the many administrative buildings now there, most will be replaced by more adequate, up-to-date permanent structures.

By 1960 this airport plans to handle about 700 plane movements a day. And the vast terminal area will become a city within a city, having everything that designation implies.

Levittown Leaps onto the Map

From the air International Airport looks even more impressive; but nothing I saw during a flight over the whole island impressed me as much as Levittown—an outstanding example of mass home production.

Up from the potato fields of a few years ago rises "rural" Long Island's largest community, new home of 50,000 persons. Here, in the heart of Nassau County, stand 14,000 houses built by Levitt and Sons, Inc. Here is the epitome of suburban growth—more than a new place name on the map (page 294).

Picture a parking lot a hundred times bigger than the biggest you've ever seen, and fill it with identical small cars. That's vaguely what Levittown from the air looked like to me.

Down on the ground a friend guided me through and around endless regiments of homes, as uniform and numerous as tents of a vast army. We passed six swimming pools, playgrounds, school, and shopping centers. With its intensive landscaping program, "Levittown is destined to be one of the garden spots of America," says a sign there.

Except for exterior color, one house looks like the next; but each is home to a family. In front of most we found baby carriages and tricycles; children's clothes hung from backyard lines.

Levittown encourages youth, especially young war veterans and their families; it makes real the ex-GI's dream of a home of his own.

At the office where house sales take place across a long counter, I watched a veteran slap down a thick wad of green bills. While he filled out application to purchase, a clerk counted the deposit. The bundle of cash contained 80 one-dollar bills and four fives.

In July, 1950, this veteran bought a house

*See "Spin Your Globe to Long Island," by Frederick Simpich, and "Henry Hudson, Magnificent Failure," by Frederick G. Vosburgh, both in the NATIONAL GEOGRAPHIC MAGAZINE for April, 1939.

Suffern
Spring Valley
Ossining
NEW YORK
Nyack
Ramsey
Tarrytown
Park Ridge
Ridgewood
White Plains
Hudson River
Paterson
NEW JERSEY
WESTCHESTER
Yonkers
Mount Vernon
New Rochelle
Passaic
Hackensack
Teaneck
George Washington Bridge
BRONX
Union City
Newark
Jersey City
Long Island City
New York
Flushing
Great Neck
Port Washington
Glen Cove
Oyster Bay
Roosevelt Bird Sanctuary
Northport
Huntington
Setauket
Port Jefferson
Stony Brook
Kings Park
Syosset
NASSAU
Smithtown
Selden
Mineola
Hicksville
MacArthur Airport
Statue of Liberty
Jamaica
Bethpage
Bethpage State Park
Central Islip
Bohemia
Patchogue
Upper New York Bay
STATEN ISLAND
Brooklyn
QUEENS
Hempstead
Levittown
Farmingdale
KINGS
Valley Stream
Bay Shore
Islip
Oakdale
Sayville
Blue Point
Jamaica Bay
Freeport
Babylon
Amityville
Lindenhurst
Coney Island
Great South Bay
Fire Islands
Lower New York Bay
Long Beach
Jones Beach State Park
Long Island Sound
Central Park
BRONX
Throgs Neck Bridge
Bronx-Whitestone Bridge
U.S. Merchant Marine Academy
Manhasset Bay
Glen Cove
Oyster Bay
Lincoln Tunnel
Union City
Queens-Midtown Tunnel
Holland Tunnel
Queensboro Bridge
Long Island City
LaGuardia Airport
Francis Lewis Park
Kings Point
Port Washington
Great Neck
Greenvale
East Norwich
Jersey City
Brooklyn Bridge
Brooklyn-Battery Tunnel
Statue of Liberty
Hutchinson River Parkway
Flushing Airport
Flushing
Little Neck Bay
Lake Success
Jericho
New York
United Nations
U.N. General Assembly
Bayside
Flushing Meadow Park
Fresh Meadows
NASSAU
United Nations Secretariat
Hicksville
Newtown Creek
Williamsburg Bridge
Forest Hills
Glen Oaks
Mineola
Westbury
New York Naval Shipyard
Manhattan Bridge
Bellerose
Roosevelt Field
Mitchel Air Force Base
Upper New York Bay
Prospect Park
Ebbets Field
QUEENS
Jamaica
Garden City
Levittown
Franklin Square
Hempstead
Brooklyn
OCEAN PARKWAY
KINGS
Marine Park
New York International Airport (Idlewild)
Valley Stream
Rockville Centre
Bellmore
Lynbrook
Freeport
Woodmere
Baldwin
Jamaica Bay
Coney Island
Lower New York Bay
Floyd Bennett Field
Far Rockaway
Rockaway Inlet
Rockaway Park
Long Beach
Jones Beach State Park
NORTH
STATUTE MILES
Atlantic Ocean

Drawn by Herbert E. Enderwood

New Towns and Industries Stud Long Island. Its Growth Paces the Nation's

Glaciers shaped the island. It rises nowhere more than 410 feet. Bathing beaches, harbors, and fishing grounds crowd its 600-mile shore line. Lower left: Map of western end shows most densely populated section on larger scale.

that didn't exist. Not until January, 1951, could he move into his brand-new home. A long waiting list, not construction time, created the delay.

"Levitt can build 600 houses a month," the clerk told me, "but we sell twice as many in that period."

In his oak-paneled office, master-builder Bill Levitt and I got right down to Levittown figures, for he still had a lot of houses to build that afternoon. He spoke calmly, I scribbled frantically: by December 31, 1949, his company had erected 10,101 homes in Levittown alone, all since July 1, 1947; the figure would increase to 14,366 a year later, and go up to 15,046 by March 1, 1951.

Farmlands Sprouting Houses, Apartments

Although not on a Levittown scale, hundreds of other housing developments are changing the face of Long Island. Farm or woodland one day becomes a series of concrete foundations the next. Extensive estates long associated with wealthy New York families frequently are sold and broken up into suburban lots.

Besides mass construction of individual houses, colossal apartment buildings, complete towns in themselves, offer homes to thousands moving to Long Island (page 305).

I visited Fresh Meadows at Flushing in Queens County. It includes 3,000 apartments in two 15-story buildings and 137 two- and three-story units. Begun in July, 1946, the community was finished and fully occupied by October, 1949. It has a population of 12,000 and hopelessly long waiting lists.

"Our tenants come from all over the United States," a resident manager said. "Industries mostly bring them, but many ex-service personnel stationed in the area during the war liked it and decided to stay. A large number of transport pilots live at Fresh Meadows because of its proximity to important airports."

Along with the popular eastward migration goes industry. Homeseekers want space for their families, business needs space for its plants. The general trend is a healthy one: transplanted factories find available labor in the growing suburbs, and residents find jobs close to home.

The New York Times summed up the

The United Nations Made Long Island the World's Hub

Since 1946 the UN has worked for world peace in makeshift quarters at Flushing Meadow, Queens, and Lake Success, in adjoining Nassau County (page 295). Four years later it began moving into a 39-story Secretariat and other permanent buildings on Manhattan's East Side.

First meeting of the General Assembly at the new headquarters will be held in 1952. For the 1951 session the delegates will gather in Europe.

Here President Truman addresses the Assembly at Flushing Meadow on October 24, 1950, fifth anniversary of the UN charter. He urged new efforts to bring about disarmament and international control of atomic energy. Russia's Andrei Y. Vishinsky and other Assembly vice presidents flank Mr. Truman on the speaker's dais.

Delegates, advisers, and distinguished guests occupy the main floor of the hall, originally a World's Fair building and later a skating rink. Translators, television crews, and radio broadcasters work in soundproof galleries (right and left). The press watches from raised seats (foreground).

Wide World

Hard-riding Poloists, Battling for an International Title, Swing Mallets at Westbury's Meadow Brook Club

With a backhand shot, Cecil Smith, Texas star, drives the ball goalward, leading the United States team to victory over Mexico's four Gracida brothers (dark jerseys). International matches, called off in 1939, returned to Meadow Brook in 1946. Planned for 1951 is a series between the United States and Argentina.

growth of Long Island as a "revolt against the city—any city—and the cramped, noisy bustle of urban life."

In Nassau County I found a number of smoke-free light industries in handsome modern plants. They moved out from the big-city district after the war.

I went through a toy factory formerly at Brooklyn (page 293). Now in a low building covering a generous ground area, it began assembling plastic toys here in January, 1950. Most of the 750 employees either live near by or expect to soon.

Not far from this factory I entered what looks more like a large university library than an industrial house which turns out office filing supplies. The firm originally started at Manhattan in 1880, transferred to Brooklyn about 40 years later and to Garden City in 1948. Of 300 employees, the majority have found homes around Garden City; others, because of frozen rents, must stay in or close to Brooklyn.

But the company didn't desert those workers unable to move with the plant. It tried to get them new jobs in Brooklyn; even granted them traveling allowances to test commuting.

On the outskirts of Mineola a potato farmer sold his 30-odd acres to the first big-scale factory to make candy in Nassau.

"We've been here only since January, 1950," said a sales manager. "Used to have three plants in Brooklyn. Everything's under one roof now, better than being scattered; and look at all the room we have."

Yards of Sweets

An endless procession of thin mint patties put on chocolate overcoats, then braved a cooling tunnel 120 feet long. We paused by women packaging candies. A full box slipped from the hands of one and smashed on the floor. She glanced at me as if to say, "This *would* have to happen when the sales manager is watching"; then looked helplessly at the mess and went on with her job.

At a new-idea bank in Franklin Square I saw a drawer full of lollipops. Children earn the sweets when they open new accounts at special low counters in the Children's Department.

Behind its handsome colonial exterior the bank building has much more the atmosphere of a department store than a money temple. It displays kitchen equipment, baby carriages, oil burners, cameras, television sets, jewelry, upholstered chairs, and other products of local dealers. For such items customers may borrow money on the spot.

At one time an automobile stood on the show floor, and an airplane hung from the ceiling; and they weren't toys (page 300).

In Suffolk County I found a lithographic company operating at Islip. Only a few months earlier it had shifted its whole plant from New York City. Machinery, including a six-color, sheet-fed offset press, stamps out 1½ million greeting cards a day. It also prints gift wrapping paper, cloth faces for dolls, children's rag and paper books, pictures, and allied products.

"Before the company came to Islip," said the transplanted southern gentleman who showed me the works, "I was living on Long Island."

He knew, he said, the next best place to North Carolina when he saw it. And I know at least one place where millions of the millions of Christmas cards come from.

Jets Thunder from Plane Factories

As a cradle of aviation, Long Island has played a major role in aircraft manufacture, which, with allied industries, grew mightily during World War II (page 303). Nassau and Suffolk Counties hold large units of the business: Republic, Grumman, Sperry, Fairchild, and Liberty.

"How many employees here?" I asked my Grumman guide.

"Sixty-three hundred, but we had more than 25,000 in wartime."

With my guide I trekked through part of the immense Grumman factory near Bethpage. My feet envied workers who use bicycles to get from one section of the floor to another.

At the time, the plant was turning out more Panther jet fighters than any other type (page 320). We also watched finishing touches to the country's largest single-engine plane, the antisubmarine Guardian. And we followed assembly of the Albatross, a ship-sized amphibian to replace the old but faithful Catalina.

Grumman's boat division, only as old as the end of the war, makes aluminum canoes, dinghies, and sport craft. NATIONAL GEOGRAPHIC MAGAZINE staff members paddled two of these canoes on assignments from the source to the mouth of the Susquehanna River, and more recently down the turbulent Hamilton River in the wilderness of Labrador.

Near Farmingdale I visited another aircraft factory.

"Republic's philosophy, strengthened by the last war," said an official of that company, "is that a plane must fly fast; otherwise, you might as well walk. And the jet models conform to this policy. At the moment we're producing F-84 Thunderjets mostly; but we're

Kodachrome by B. Anthony Stewart

Summer's Fairest Breezes Drive Racing Yachts Across Long Island Sound

New York and Connecticut clubs take turns accommodating the Sound's week-end regattas. International-class sloops here hit the starting line off Port Washington's Manhasset Bay Yacht Club.

Brooklyn-Battery Tunnel, Diving Under the East River, Links Long Island's Western Tip to Manhattan Island

[illegible]

When a Tennis Player Reaches Forest Hills' Grand Center Court He Is Playing For a Top Championship

Pan American's Stratocruiser, Seemingly at Rest, Roars Across an Underpass at New York International Airport (Idlewild)

[illegible]

Airline Hostesses at Idlewild Speak in Many Tongues . . . Training for Emergencies, They Put to Sea in Rubber Boats

Bronx-Whitestone Bridge, Graceful Leaping the East River, Carries Long Island Motorists to Westchester and Connecticut Parkways

Playtime on Long Island: It May Mean Plastic Toys or a Roaring Afternoon at Ebbets Field

[illegible] made by the Revell Manufacturing Company, which now [illegible] Mattel Toys [illegible] Sally Tomato [illegible] the Texas Rangers [illegible] and the Brooklyn Dodgers' heritage [illegible]

Up from Nissen Petting Tuckds Spring
old Family Homes : Month

"What? You Mean We Cannot Move In
for a Year?"

putting still newer types of jet aircraft on the [illegible]

"By the way," he added, "as you go through the plant, listen for a rhythm in all the noise. If it's regular and steady, all's well. If not, something's fouled up."

I heard the rhythm.

"We anticipated Pearl Harbor," said Preston R. Hassett, president of the Sperry Gyroscope Company. "Our 50-year-old Brooklyn plant had to expand. We scoured every State in the country before locating here near Lake Success.

"Why did she? Because of 1½ million potential employees within a 10-mile radius. [illegible] new plant during the war. Ours is a clean, precision-type industry that requires intelligent labor."

Compass Needed at Sperry Plant

Six months before Pearl Harbor this Nassau site was an open field. By February, 1942, production had begun. The company engaged 33,000 workers at the peak of war activity. Even today Sperry keeps 9,000 busy.

President Hassett left his desk to show me the enormous establishment. Had I tried to find my own way, I should have needed a compass—I mean a gyrocompass. Sperry makes all its own parts; assembles them; and has its own foundry.

Here, as at Grumman, bicycles are available to cover long floor distances in the huge plant.

Since Sperry's original production of the gyrocompass in 1910, this has remained the steadiest item of output.

"Not magnetic, the gyrocompass points to true north," Hassett explained. "It is simply based on kinetics, or the physics of motion."

World War II's Sperry bomb sight worked on the gyro principle.

We looked at automatic pilots and radar equipment, then concentrated on the Zero Reader—latest thing in air instrumentation. It gives a flyer only one thing, instead of a score, to watch on his instrument board.

For altitude, direction of flight, and radio beam he can set the proper dials, then keep an eye on just the Zero Reader indicator. He knows that as long as he keeps the intersection of two wires on the center dot, the plane is flying as desired.

After the war Sperry rented extra floor space to United Nations for offices and council chambers. This remodeled section of the factory at Lake Success has served as temporary headquarters of the Secretariat, one of the principal UN organs. Here 3,500 persons work for International peace and security (page 284).

I walked past flags of each of the 60 member countries to enter the UN headquarters. Along seemingly endless corridors I passed peoples of all nationalities, some Orientals in native dress but most in Western garb.

Then at last, in the Security Council Chamber, I stood behind the president's chair and looked over the members' horseshoe table toward stepped-up rows of seats for the public. The Council held no session that day. At the moment I alone peopled the great chamber and thought, of course, that if these walls could talk. . . . Actually, the walls don't have to speak; every word spoken here is permanently disk-recorded—verbatim in English and [illegible]

[illegible] Nassau and Queens, [illegible] relations officer in the interim headquarters, "and they put apartments at the disposal of member workers.

"Long Island has had no trouble absorbing foreign elements of UN. Their children go to American schools. A Burmese housewife learns the currency, prices, and how to shop. UN people buy cars, patronize stores, and spend money just like anybody else. In fact, they fit into the American picture.

"Many settled in Great Neck and made it generally more cosmopolitan. I know, because I live there myself," the press man continued. "Another thing; awareness of international problems has greatly increased on Long Island since the coming of United Nations. The interchange of ideas has been profitable.

"A large number of UN employees will stay on Long Island; they have homes here now, and they like the place," he concluded.

Grade and high schools for swelling communities must cope with rapidly growing student bodies matched only by a few other areas in the United States. So Long Island keeps on building.

I visited three colleges: Adelphi in Garden City; Hofstra at Hempstead; and the Long Island Agricultural and Technical Institute near Farmingdale. In interviews with their presidents, each told a story of recent expansion. All have added new buildings for enrollments which have leaped from three or four hundred to several thousand.

Long Island is a natural playground; but Robert Moses, the talented engineering and

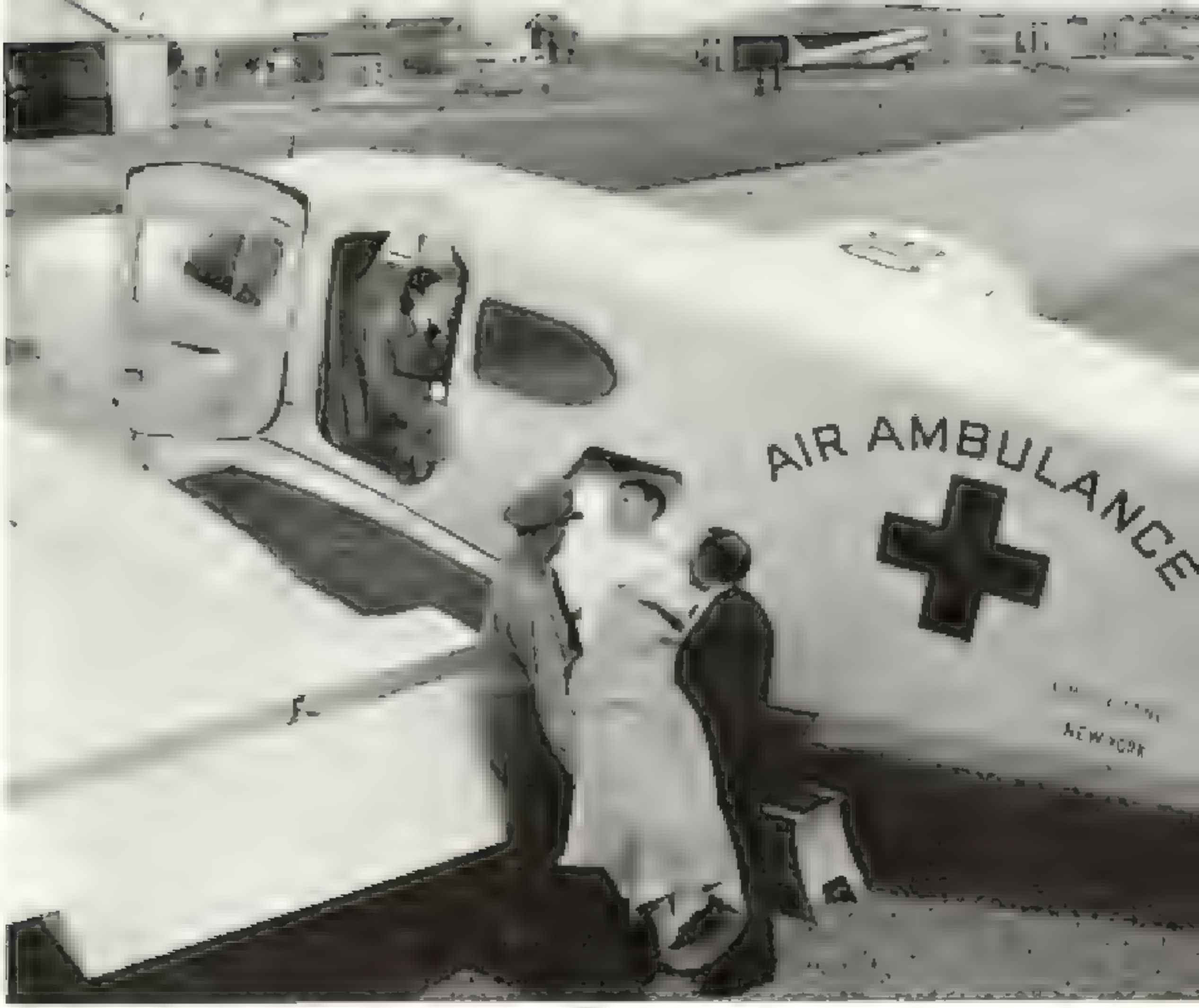
* See "Flying in the 'Hundreth' Era," by Frederick G. Vosburgh, NATIONAL GEOGRAPHIC MAGAZINE, September, 1959.

Kings Point Trains Cadet-Midshipmen to Run Merchant Ships

[illegible]

Wild Ducks, Safe from Gunfire Within New York City Limits, Blacken the Sky over Little Neck Bay

A Birdseye View of Bird Watchers—Audubon Society Members Scan the Sky from a Long Island Dune



Long Island's Aerial Ambulance Makes Travel Swift and Easy for the Disabled

[illegible] New York hospital [illegible] Mrs. [illegible]

[illegible] for it on [illegible] shirt. Here is the Long Island State Park Commission [illegible] other park [illegible] to improve its recreational [illegible] Each [illegible] of [illegible] from Brooklyn to Montauk [illegible] parkways leading to them [illegible]

Hundreds of Miles of Bathing Beaches

He planned it this way back in 192[illegible]. And in [illegible] parks [illegible] parkways [illegible] further out [illegible] players, [illegible] and [illegible] places reserved for their enjoyment in Nassau and Suffolk.

Robert Moses [illegible] Nature, he [illegible] it.

The [illegible] gentle topography and relatively [illegible] climate [illegible] The [illegible]

famous bathing beach (page 2[illegible]). Sheltered bays and inlets harbor thousands of small craft [illegible] the water front. Fishing grounds are [illegible]

Nearly 100 golf courses [illegible] with the [illegible] Nassau seems to have [illegible] but every sport [illegible] West Side Tennis Club at Forest Hills (page 2[illegible]). [illegible] championships [illegible] is played on the International Field at Meadow Brook Club at Westbury (page 2[illegible]) as well as on other Long Island field[illegible]

Bethpage State Park, not far from [illegible] golf [illegible] polo, and tennis for [illegible] Anyone can walk into the [illegible] clubhouse [illegible] Here I found everything [illegible] with the most exclusive clubs [illegible]

A friend and I went to Jones Beach on the south shore one Sunday, so did 138,999 others; even more travel to get there. For 40 minutes police had to barricade thoroughfares to the shore where concrete parking fields hold 16,000 automobiles at once. Carloads turned away, but more waited for the blockade to break.

We joined throngs on the boardwalk along a third of the six-mile beach. Bodies in every stage of sun-tanning or under big bright umbrellas almost completely obscured the yellow sand (page 308). Giant areas invited adults and children to play shuffleboard, paddle tennis, table tennis, and handball, or try archery and the 18-hole pitch and putt golf course. Many refreshment pavilions, cafes and restaurants with tables on outdoor terraces satisfied mass appetites.

Steer with Window Aids Research

Have you ever seen a live, healthy steer with a window in his side? Such a thing exists at the National Dairy Research Laboratories in Oakdale. Through the extraordinary aperture scientists painlessly take samples of partly digested fodder straight from the first compartment of the bovine's four-part stomach. They look for bacteria that help the animal digest his food.

The Research Laboratories hope to find the ideal food ration for animals. Working with low-grade fodder only, they want to discover what bacteria to combine with it instead of using corn and other grains suitable for humans. Then food-short areas could support a cattle industry.

Since 1947 National Dairy Research Laboratories, Inc., has occupied the former William K. Vanderbilt estate at Oakdale. The company has converted a large part of the 110-room mansion, carriage house, and stables into Laboratories. Microbiologists and dairy technologists study in the former indoor tennis court. Animals for feeding experiments latter in air-conditioned quarters under what was once a squash court. Test baking with dried milk utilizes a section of the vast kitchens.

With some members of the staff I lunched in a paneled cafeteria, once the mansion's billiard room.

One hundred and thirty or more scientists do research on milk, ice cream, cheese, butter, animal and poultry feeds, salad dressing, many other dairy and food products, as well as on by-products of the dairy industry which find uses in fields other than nutrition.

Into the Pine Barrens I drove north to look at MacArthur Airport. In a matter of minutes I had jumped from milk and molecules to giant bombers and jet planes testing the air instruments of tomorrow.

Down on the south shore again, I went east along roads which stayed near at the water. I touched at Blue Point, breeding ground of that celebrated oyster appearing on menus all over the map. And in the vicinity of Mastic and Moriches I entered the farming region which some 60 years ago first hatched the ducks that helped make Long Island famous. White as new-fallen snow, they blanketed the banks of tidal streams; and they prattled more garrulously than an army of old hens!

Some place names appropriately sounded like quacking ducks—Speonk, Quiogue, and Quogue—as I drove on. Soon I crossed the canal linking Shinnecock and Great Peconic Bays.

In the Shinnecock Hills area white man's sport took over the Indian's hunting ground. Here spread the exclusive domains of the National Golf Club of America and the Shinnecock Hills Golf Club.

Down I coasted to Southampton, one of the oldest English settlements on the Island; it dates back to 1640. But one would never guess its venerable span, seeing this fashionable and utterly modern resort by the sea. Fancy branches of Fifth Avenue emporiums line the main shopping streets. The rush of summer visitors dispels the quiet charm of the centuries-old village.

I did see, however, a "vest-pocket" bookshop in a gambrel-roofed cottage wearing a 1950 date line.

Palatial homes and elaborate estates have turned the once humble hamlet into a seasonal capital of society. Meadow Club invites the world's foremost tennis players to its velvety grass courts. To the Beach, Riding and Hunt, and Sebonac Yacht Clubs, social register names lend tone. Society news reporters and photographers rarely miss a wedding at St. Andrews Dune Church.

True natives of Southampton in old clothes were really working for a living. Knee-deep or deeper in a marshy lagoon they grappled with long tongs for clams. I wondered about the owners of nearby mansions on the dunes where drifting sand and rising taxes piled higher and higher.

Hollyhocks and *Home, Sweet Home*

Through some of the most productive potato country on Long Island I resumed my eastward journey along the Montauk Highway. Occasionally the green acres yielded to fields of ripening wheat or ready to harvest rye; they formed warm golden patches in the late afternoon sun.

Miniature Airframe Flown on a Plastic Tower Test New Radio Equipment

[illegible]

Long Islanders in Fields Revive Lawn Bowling

[illegible]

Brooklyn's Vanderveer Estates, 68 Garden-Apt. Units, Rise from a Condemned Business Section

[illegible]

Long Island Skill Makes Arrows Fly Straight and True

[illegible]

Freeport's Propellers Meet Exacting Tests for Business

[illegible]

No Stop Signs, No Traffic Lights. Long Island Parkways Cross Like Bridges over Rivers

[illegible]

Bathers and Lounsellas Cover the Sand at Jones Beach

Pekin Ducks Cover a Stream with 'Snow.' They Live Nine Weeks; Then—the Quick Freeze!

Almost I reached East Hampton and soon found out what inspired John Howard Payne, who once lived here, to write the immortal *Home, Sweet Home*. Whether or not one of America's most beautiful villages, there's no place like East Hampton for me.

A salt-box type with shingles all over, Payne's home stands in the shadows of aged trees and a hoary windmill. Hollyhocks grow along its picket fence and near the front door. Vines wriggling up walls brush against windows with the breeze.

A woman at the entrance of this house collected a modest admission fee, pointed out Insterware, 17th- and 18th-century furnishings, and talked of John Howard Payne. When I started to leave, she asked if I'd like to hear an old music box. Its wiry bristles fairly melted into the soft, slow melody of *Home, Sweet Home*.

A slight chill ran along my spine; the skin on my wrists sprouted goose flesh. I looked at the woman. Her eyes were [illegible]

"It does something to you, too," I said.

"I've been around here for years," she confessed, "but I can't hear that tune without feeling it."

As I went out the door, she called, "I'll watch for your story because I think you'll remember this place." I do indeed!

At the East Hampton Free Library I called on Mr. Morton Pennypacker, to see the most complete collection of Long Island volumes and documents in existence. Forty years ago he set out to gather 200 books dealing with the island. Authorities tried to discourage him; that much had not, they insisted, been written on the subject. Now a fireproof section of the library holds 120,000 items, including 20,000 books, all relating to Long Island.

Prize of Long Island Collection

"Which single item do you prize most highly?" I asked the gracious elderly gentleman.

He unlocked a drawer and took out a volume stained with age. Known as the *Duke's Laws*, it was written in longhand and published in 1665 by Richard Nicolls, then English governor of the Duke of York's lands in the New World.

A windmill still grinds grain at one end of Main Street; a mossy-banked duck pond reflects at the other. In between, old homes, magnificent elms, and pleasant greens help preserve the peaceful appeal of three-centuries-old East Hampton. To raise funds for maintenance of public lawns and trees, the Ladies' Village Improvement Society annually stages a one-day fair; from the looks of things they do well (page 321).

In East Hampton I stayed at a friendly guesthouse across the street from the John Drew Memorial Theater, named for the renowned actor, who lived in East Hampton.

Montauk, Mecca of Lure and Lens

Montauk, easternmost point of Long Island, used to be considered the end of the world. Cattle grazed around a lighthouse on it in 1797 (page 322). A handful of people lived [illegible] outsiders went there, mostly to fish. Difficult sandy roads discouraged communication with the rest of the island.

Carl Graham Fisher may not have been the first to see Montauk's possibilities, but in the 1920's he took the lead in trying to develop them. With amazing success he had already transformed an uninhabited tract of south Florida shore into the fabulous Miami Beach. Except for a series of misfortunes, including the Wall Street crash of 1929, Fisher might have made Montauk a world-renowned resort.

Since 1940, however, more and more people have been going to Montauk. An excellent highway now extends to the eastern tip and to two State parks in the area. Permanent population of Montauk village has doubled in the last ten years. Crowded hotels turn summer visitors away; other hostels under construction will absorb some of the future overflow. Today the community continues to grow on the multimillion-dollar foundation laid by Carl Fisher.

"All aboard for great fishing!" shouts the Long Island Rail Road.

From mid-May to November the "Fisherman's Special" leaves New York City every Saturday and Sunday at dawn. Three hours later it discharges swarms of anglers at the Montauk docks.

I saw some 300 men, women, and children pour off one of these trains and race for the pier at "Fishtown-La." Within 15 minutes [illegible] boats. Late that afternoon they returned laden with sea bass, tautog, codfish, flake porgy, blackfish, bluefish, [illegible] large and small. At troughs [illegible] purpose along the pier, the city fishermen cleaned their catch. Well offshore prize catches of swordfish, huge tuna, and blue and white marlin lure sports fishermen to Montauk (pages 324, 325).

Generations of Long Island fishermen have lived by what they could take from surrounding waters. Besides the fish we've already

met, tons of clams, crabs, oysters, lobsters, mussels, and scallops bring millions of dollars each year.

Whaling Built Salty Sag Harbor

Whales, for historic example, built Sag Harbor, which nestles in a safe haven of Shelter Island Sound. Between 1820 and 1850, the village's most prosperous era, the local fleet collected nearly a million barrels of whale oil and more than 5 million pounds of bone.

Then came the discovery of petroleum in Pennsylvania, and harpoons went the way of arrowheads. As whaling blew right out of its life, Sag Harbor limped landward like a fired ship, salt.

Still, the rich memory of Moby Dick lives on in the little village. Big homes, some palatial, attest the splendor of the good old whaling days (page 326). On a particularly imposing mansion, now the whaling museum, I admired a decorative pattern alternating blubber spade with whale tooth.

Friendly residents showed me the Presbyterian Winters' Church, its steeple took off for kingdom come with the hurricane of 1938. The interior's simple beauty remains intact: clean white walls, pews with gates and silver name plates, and, of all things, shiny brass cuspidors on the floor!

Whaling alone, however, didn't distinguish Sag Harbor. As early as 1789 our first Congress opened a United States customhouse here, the same year that one was established in New York City. And two years later the village scooped the entire island by publishing its first newspaper.

"The most significant change at Sag Harbor in recent years," said a friend who lives there, "is the growing interest of residents in local history and their heritage. They no longer take these things for granted; they now make an effort to preserve them."

An Edison Sparks New Craftsmanship

And an outsider caught the spirit. In 1943 Charles Edison, former Governor of New Jersey and son of the revered inventor, bought and renovated a rambling old home once occupied by a whaling family. Governor Edison also saved the original customhouse from possible demolition and helped finance its restoration.

Although he already had huge industries in New Jersey, Governor Edison looked for something more personal than mass labor and mass production. He sought a closer relationship between employees and their jobs. Craftsmanship interested him; the ancient art of using one's hands with skill, not simply turning switches or pressing buttons, fascinated him. In a phrase, he wanted to humanize industry.

He liked Sag Harbor and its people; affectionately they called him "Governor." He sensed the community's self reliance, respected its solid American background. So here he set up several small-scale industries, employing village folk.

At one of the new Edison plants I watched women arranging coils for the Ediphone (dictation machine). A team in an adjoining room turned out cardboard cylinders to encase the delicate parts of this instrument.

"Now I'll show you something more in line with the Governor's fondness for things made by hand," and a supervisor took me to another little factory.

We looked over the shoulder of a man working with fire and glass. From heated tubing he made delicate pestles for stirring beverages, and at one end of each he deftly fashioned a miniature animal, bird, boat, or something of the sort—all done in glass and by hand. He used no mold, seldom relied on models.

Sea and Land Yield Heavy Harvest

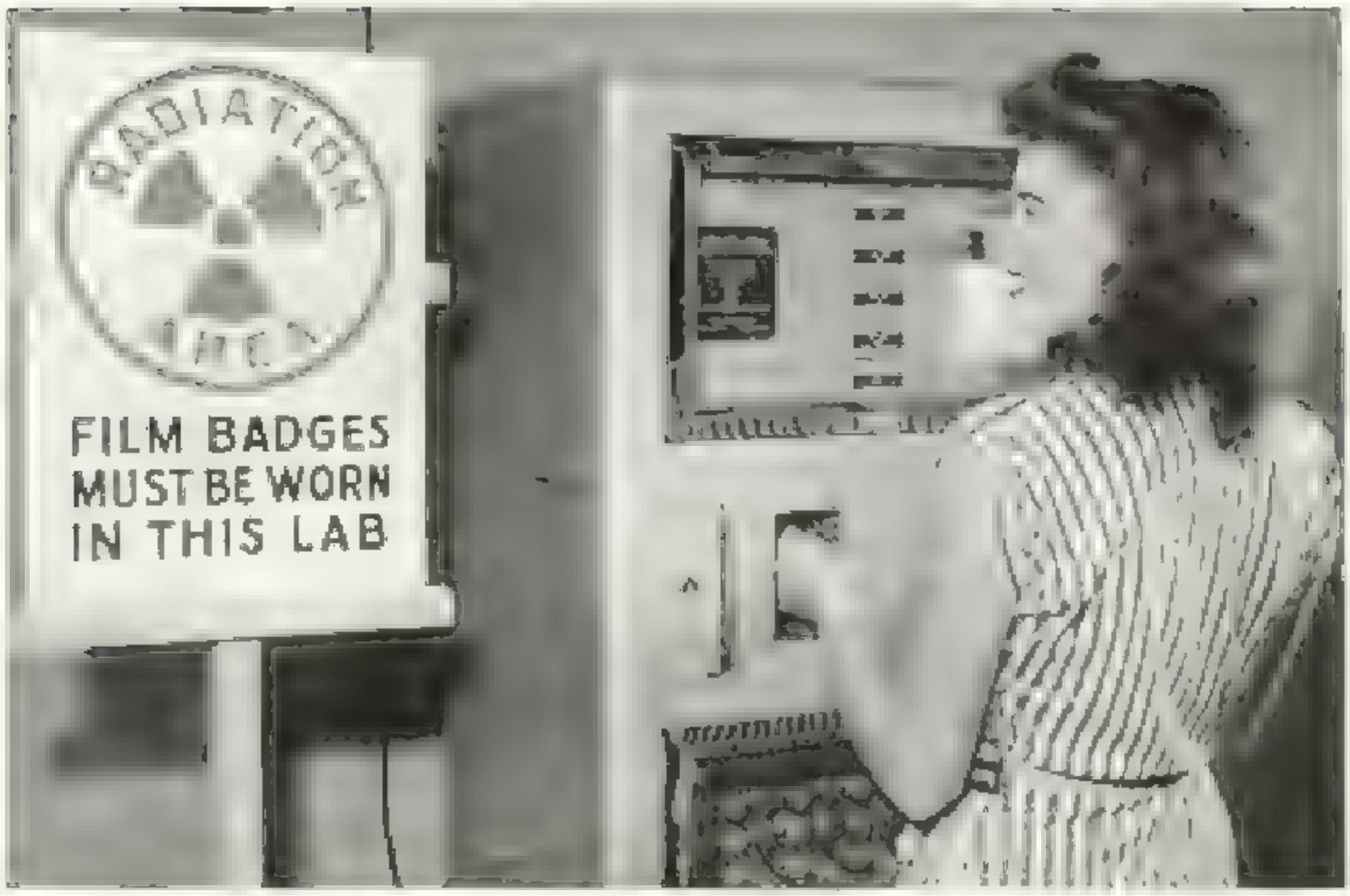
North of Sag Harbor a quick ferry trip put me on Shelter Island, wedged between the north and south forks of Long Island. I could have lingered indefinitely, exploring [illegible] lonely beaches; but I had to keep an appointment with oysters. Another short ferry ride, and I landed in Greenport.

There I met Charles Wooley, manager of a company that plants, breeds, transplants, dredges, packs, and ships upwards of 150,000 bushels of oysters a year. Quality? They come from some of the best oyster grounds in the world: Long Island Sound, Gardiners and Peconic Bays. By train they go to tables as far afield as California.

"Since it takes four to five years to raise a crop," Wooley said, "and since we've been working these waters for more than 40 years, we should know how good they are."

As we moved through the plant, Wooley explained the steps in preparing oysters: grading, washing, some shucking, and packing in sizes ranging from quart can to three-bushel barrel. Because of Long Island's extra-large varieties, 75 percent are shipped in the shell.

Farmlands around Greenport import labor for the potato harvest. Driving toward Orient Point, I saw scores of dusky field hands digging spuds. I stopped to talk to the colored



An Electronic Diagnostician Protects Atomic Researchers Against Contamination

This [illegible] at Long Island [illegible] National Laboratory checks health [illegible] five Geiger counters—two for each hand and one for the [illegible] [illegible] of data from [illegible]

headman of one crew. He sat in a big black car with a [illegible]

"How are potatoes this year?" I asked.

"[illegible] than the price they bring," he replied, with a shrug.

[illegible] Island's potato barrel, I headed for Riverhead [illegible] Long Island.

[illegible] the road [illegible] Hill House built [illegible] on the ground floor, each 9½ feet long, 5 high, and 3 deep.

Millions of Bushels of Spuds

Riverhead lies in the heart of one of New York State's richest farming districts. From this region enormous quantities of potatoes, cauliflower, brussels [illegible] and ducklings flow to nationwide markets.

Potatoes are to Long Island what they mean to Maine. Suffolk County [illegible] 22 [illegible] grows 80 percent of the Island's entire crop. The Department of Agriculture estimated Long Island's 1950 harvest at 18,615,000 bushels.

Harold Evans slowly drove his truck through a field while husky field hands tossed 60-pound sacks of spuds aboard. When [illegible] talk with me.

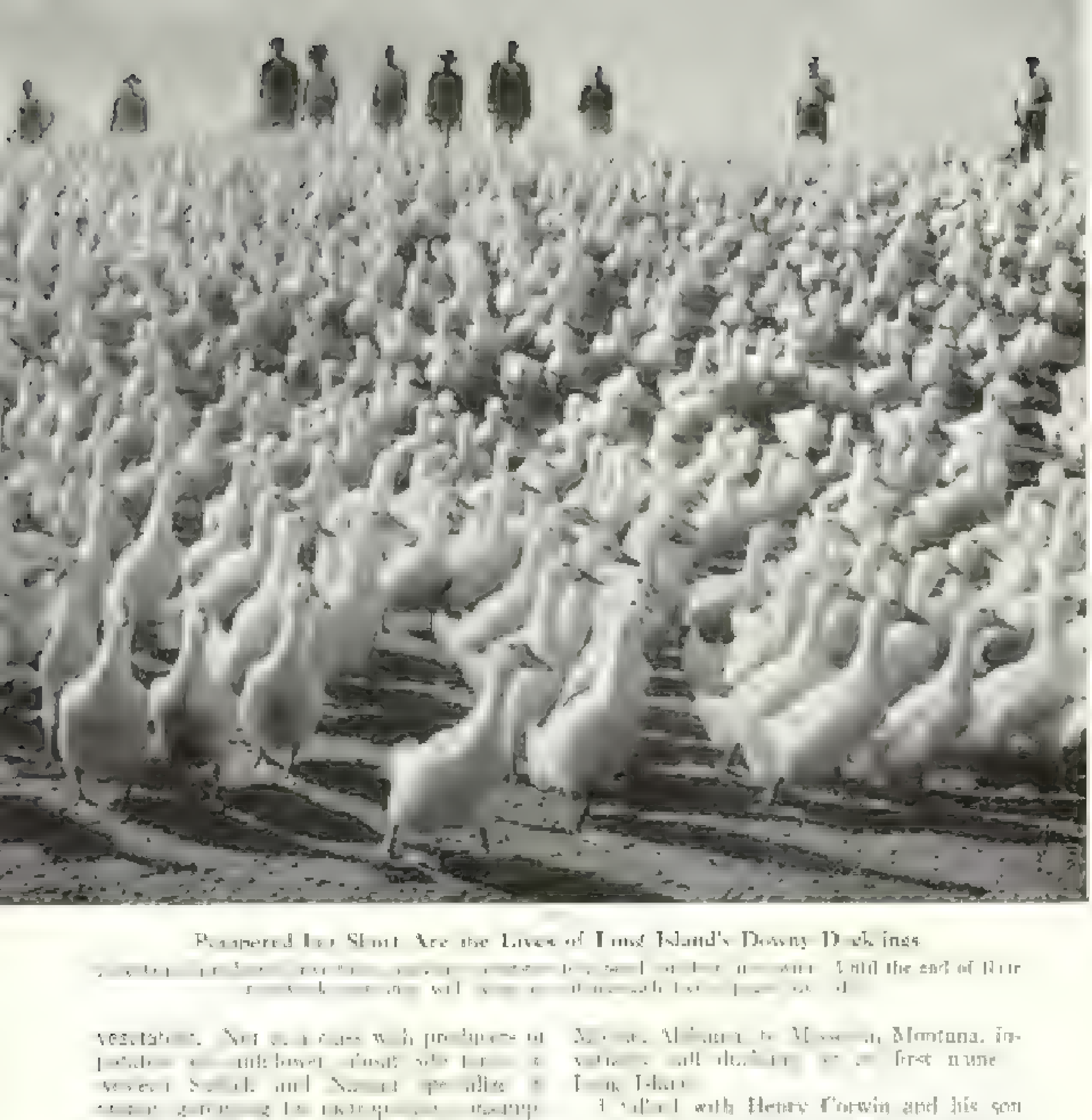
[illegible] of irrigation and said that this farm installed [illegible] backbreaking burdens.

"See that hay-stack over there?" he pointed [illegible] never touched it; all done by [illegible] from cutting to piling.

"Nowadays, a farmer must be a mechanic too," Evans summed up.

At other farms I saw much cauliflower in early growing stages. It ranks as second largest crop on Long Island, first area in the United States to raise this vegetable on a big scale. Suffolk's annual production of [illegible]

[illegible] Long Island grows [illegible]



Pampered but Short Are the Lives of Long Island's Downy Duck ings

[illegible] Until the end of their [illegible]

vegetables. Not so it goes with producers of potatoes and cauliflower. [illegible] who farm in western Suffolk and Nassau specialize in [illegible] gardening for metropolitan consumption.

Farmers of various nationalities, [illegible] take naturally to this [illegible]. They plant closely, work hard, [illegible] make high investments and look for high returns. Mostly they raise spinach, lettuce, beets, carrots, sweet corn, snap beans, and some asparagus.

Ducks and Drakes

You can't stay in the Riverhead area long without seeing and hearing a lot of ducks. They tell a story that began in 1873 when a [illegible] left China for the United States. These few members of the White Pekin breed started something which today makes Long Island [illegible] the foremost duck-raising section in the world ([illegible] and above).

Now [illegible] [illegible], [illegible], to [illegible], Montana, invariably with [illegible] the first name Long Island.

I talked with Henry Corwin and his son on their farm near Riverhead. We had to raise our voices, for they raise ducks. The quacking and peeping sounded like a successful stag chowder party.

"I'm raising 'em [illegible] because I love to," the father said. "Started out to make it a hobby, but the thing grew and grew, the way ducks do."

Corwin [illegible] years ago with [illegible] ducks. Now his [illegible] farm sends to market [illegible] ducklings a year. In one of his buildings I saw a battery of incubators capable of holding [illegible] eggs at once. [illegible] brooder houses through which ducklings move in successive stages [illegible], and end up at the processing station where the finished product is mechanically [illegible] and cooled, then packed for shipment. Feathers, as a by-product, bring a tidy sum.

I dropped down to Eastport to visit the Long Island Duck Packing Corporation. Vaults kept at 65 degrees below zero yearly freeze millions of pounds of farm produce—largely poultry and vegetables. For farmers it can hold ducks in frozen storage until prices favor sales (page 319).

Nation's Biggest Research Reactor

In 1946 a group of scientists from leading universities of northeastern United States discussed the type of machines needed to learn important new facts about the atom. The machines, they agreed, would be too big for their own institutions to afford. So Associated Universities, Inc., was formed and now operates Brookhaven National Laboratory at Upton as a Government-financed project under contract with the U. S. Atomic Energy Commission (page 313).

Brookhaven scientists," explained an officer of the organization, "are studying the atom much as primitive man studied a bird's egg. In both cases the object is broken open to see what's inside. But the smaller the atomic particle, the harder it is to break open, and, therefore, the bigger the equipment needed to do the job. In fact, some of our tools are almost as large as a Navy destroyer, in contrast with the traditional test tube symbolic of the science laboratory.

"With such devices, scientists hope to make important discoveries about the nature and the characteristics of neutrons, protons, mesons, and other particles much too small for the naked eye to see.

The first such tool, the Nation's largest and most powerful reactor designed for research, went into action August 22, 1950, at Brookhaven.

The new reactor (or pile) is an "atomic furnace" in which the "burning" (or chain reaction) of uranium atoms produces quantities of neutrons for experiments.

Brookhaven scientists are also studying the physical, chemical, biological, and medical effects of nuclear radiation on matter of all types, including living cells. For example, I saw a cornfield under atomic radiation. It was a strange sight, with yellow signs warning persons to keep a specified distance from the "hot" experiments.

Atomic Knowledge to Improve Life

But knowledge gained from tests such as these may help man learn how to apply radiation to improve—not destroy—plant and animal life. Brookhaven, in short, does not produce atomic bombs—it produces knowledge (page 319).

The tall chimney of one of the most modern power plants in the United States guided me to Port Jefferson on the north shore. The district before December, 1948, had little need for a station capable of generating 100,000 kilowatts. Then, there wasn't much industry in this region, today experiencing the sudden growth and change felt by the entire island.

West of Port Jefferson I found a striking change at Stony Brook. Before the war the village looked like any run-down suburban community, with shabby shops and decrepit dwellings.

Now civic spirit has re-created the 300-year old settlement as an ideal village of the colonial era.

Its shops, firehouse, post office, even a gas station, conform to traditions of 18th-century architecture. No overhead wires or signs mar the purity of these buildings facing a wide village green. The civic center model—1750 style—for the 1951 planning and construction of other Long Island communities.

Westward along the north shore I continued to Oyster Bay. I walked up a quiet path to the grave of former President Theodore Roosevelt. The plain stone that marks the spot gives simply his name and dates of birth and death. Beneath this inscription appears the similarly understated epitaph of his wife, Edith Kermit.

The 12 acre Roosevelt Bird Sanctuary adjoins the cemetery. Owned and administered by the National Audubon Society, it stands to the memory of the 26th President of the United States.

I followed a line through the wooded vale where Roosevelt as a boy observed birds, animals, and trees.

I couldn't count the fleets of racing boats I watched one Sunday at Port Washington's Manhasset Bay Yacht Club. Off harbors all along the north shore, the coasts of New York and Connecticut, the Yacht Racing Association of Long Island Sound stages sailing races each week end of the summer season. Clubs around the Sound take turns at being host (page 267).

Annapolis of the Merchant Marine

Circling the head of Manhasset Bay, I drove through Great Neck to Kings Point. Here, in quiet days before Pearl Harbor, spread the elaborate estate of the late automobile engineering genius, Walter P. Chrysler. A month after Pearl Harbor this property became the site for the Annapolis of the Merchant Marine. By 1943 the United States Merchant Marine Academy had enrolled 2,070 potential sea captains.

Young Brooklynites Desert Their Sidewalks for a Dance on the Green in Prospect Park

Dan Farrell

Revolving Turret Delivers a Magic Drug to Washed Workers in Bacteria-free Cubicles

[illegible] new antibiotic, terramycin, at Charles Pfizer [illegible] Pfizer [illegible] population [illegible] production [illegible] [illegible] treatment [illegible] [illegible] [illegible]

During World War II, [illegible] through accelerated courses at the [illegible]. Two-thirds of these officers [illegible] the [illegible] on active duty [illegible] the U. S. N. [illegible] 1 [illegible] June 1950, a total of [illegible] had been [illegible].

Bare on the early Indian trails [illegible] out of sight) I rolled into Long Island [illegible] Brooklyn, home [illegible] from the rolling [illegible] the [illegible].

How [illegible] this city of nearly three [illegible] people [illegible] four acute angles [illegible] roof of one of its tallest buildings, [illegible] along the water front: inside industry [illegible] and, of course, in a grandstand seat at Ebbets Field.

[illegible] the St. George Hotel [illegible] New York City across the East River [illegible] the length of Brooklyn Bridge [illegible] Long Island. This end of that [illegible] Brooklyn's heart where [illegible] civic center: [illegible] are coming down.

And over here, on the residential side, more hideous like skeletons with dark hollow eyes will make way for a unique triple-deck highway, the Brooklyn-Queens Expressway, to be completed in 1952 (page 288).

How many trees grow in Brooklyn? Church spires, too. Besides the 526 green acres of mid-city Prospect Park, 145 other parks range in size from less than a quarter-acre to 1,800. You can't see Coney Island from your roof but you can drive there [illegible] Ocean Parkway in half an hour or less [illegible].

It [illegible] to be [illegible] mile beach and boardwalk, midways, fun clubs, and cafés less crowded than expected. "Gone to work, back next Sunday," might explain.

Seeing Brooklyn's Busy Water Front

To see Brooklyn's water front, take a tug any one of more than 600 on New York Bay. I boarded the *Moira Moran* and joined Capt. Anton Hjelle in the wheelhouse.

He steered toward the Army wharves at South Brooklyn [illegible] in warehouse.

Now [illegible] north. *Moira* passed by the Bush Terminal piers; nosed into [illegible] Gowanus Bay under a [illegible] slid past stacks of lumber [illegible] churned through Buttermilk Channel [illegible] 2½ miles of the New York Harbor [illegible].

As we made our way, I began to see where several [illegible] unloaded, or made repairs.

We passed under [illegible] Brooklyn and Manhattan Bridges and [illegible] of roasting coffee. It came from one of the

processing plants that make Brooklyn one of the biggest handlers of coffee on the globe. The smell reminded the skipper.

"Three coffees, all with cream, one with sugar," he called through a wheelhouse window to someone on deck.

Hefty steel cranes towered above Brooklyn Navy Yard (New York Naval Shipyard) like [illegible] At this "mother of all our navy yards" more than 50,000 men worked in World War II. Now packed with nearly every type of warship, it seemed one long floating fortress.

Moira found factory-banked Newtown Creek too clogged with freight barges to proceed; so headed back along the East River. The skipper picked up the ship-to-shore telephone to notify his head office of our return. We had covered a water front that handles about 60 percent of all the shipping business done by the Port of New York.

Brooklyn's water front forms America's biggest commissary, just across the water from America's biggest market. Part of Bush Terminal Buildings Company is a grocery store in itself. Tremendous trucks and small datsuns in tractor-drawn trains moved cases, cans, sacks, crates, jugs, and drums of familiar foodstuffs. We even saw rolls of wrapping paper as big as those that go to news presses.

Bush Terminal Buildings Company rents 16 buildings, covering approximately 10 city blocks, to industrial concerns. On a total floor area equal to 110 football fields tenant companies engage 25,000 workers.

They manufacture anything from aircraft parts to chewing gum, from biscuits and bedding to champagne and lamp shades, cosmetics, farm implements, wooden legs for [illegible] and wholesale grocery items. [illegible] large properties [illegible]

Brooklyn's Trade World-wide

Brooklyn trades with the world. In one of numerous warehouses at Bush Terminal Company I noted such imported items as tea, crude rubber, pepper, African palm oil, cocoa butter from Brazil, spices, wool, green coffee, cocoa beans, soybeans, cinnamon, mica, shellac, nails from Germany, gum copal from Indonesia; also toys made in Japan; egg yolk, feathers, and horse hair from China.

One hundred years ago a chemical company under the name of Pfizer used marl from bottoms of wine casks to make cream of tartar for baking powder. Today this company, with modern laboratories in north Brooklyn, has grown into one of the world's largest producers of penicillin and other life-saving drugs (page 317).

In January, 1950, Pfizer announced its own discovery of another multiple-purpose drug called terramycin—"penicillin's newest cousin makes dying still more difficult."

Pfizer produces tons of antibiotics (antimicrobial substances isolated from the soil, for example). These affect the microbes but not the cell tissues of the host. Terramycin is an antibiotic; it stifles the life processes of germs; it helps patients recover from many ills, among them blood poisoning, virus pneumonia, whooping cough, tonsillitis, strep throat, amoebic dysentery, shingles, and venereal diseases.

Drugs and Bugs for Saving Life

To all corners of the earth Pfizer sends kits to collect soil samples to be tested in its Brooklyn laboratories. Of 100,000 such samples put through long-time screening experiments, only terramycin proved effective enough to become medically important. Still, clinical evaluation of it will continue for months to come.

"Bugs are our employees," said the president of Pfizer. "Everything here stems from fermentation technique; in this work we use organisms to a great extent."

Pfizer has developed tremendously in the last 10 years. Employment (not counting bugs) jumped from 500 to 3,000 workers. The products traveled everywhere with United States forces during World War II; go with them now. Natives in far-off lands who can't read English have learned to recognize the label on Pfizer bottles and packages.

The natives of Brooklyn are remarkable. A friend of mine asked a Brooklynite how to get Montague Street.

"Well, if it's tickets to the ball game you want," he began, then gave explicit directions to the downtown ticket office at No. 215.

So we went to Ebbets Field and watched Brooklyn's beloved Dodgers knock the Boston Braves back to Beacon Street, 8 to 3 (page 293).

With darkness I returned to the roof high above the borough. Myriad lights of Manhattan and Brooklyn merged like the traffic on bridges between them and made two cities one.

An easterly breeze cooled the August evening. It smelled fresh as a Montauk meadow. Had it, I wondered, rustled the vines against a weathered cottage in East Hampton, or filled the sails of a windmill somewhere in Suffolk?

I felt the breath of a new Long Island—growing home of increasing millions.

Once This Rich Food Package Swam, Ate, and Quacked

Peaceful Atoms Irradiate Corn for the Good of Mankind

600 Miles an Hour or 63 Grumman Satisfies Speed Tastes with Deadly Jet Fighters and Bright Mountain Canoes

East Hampton in Carnival Sport Stages its 56th Fair to Entrance the Village Scenery

Montauk Point Light, a Landmark to Mariners Since 1797, Stands Like an Exclamation Point at Long Island's Eastern Tip

[illegible]

Their Bare Feet on Windswept Dunes, Vacationists Forget Tight Shoes and Hard City Pavements


CALIBAN II

Montana Fishing Is Not All Fun: Has Flies to Cover the Catch (Right)

[illegible]

Sag Harbor in Period Dress Honors the Whalers Who Built Its Stately Mansions

Yankee Roams the Orient

By Irving and Electa Johnson

ONE pleasant part of a *Yankee* world cruise is sailing away from the world's troubles. We discontinue the newspapers, shut off the radio. Does the cold war reach area? We do not know for days on end.

On our 96-foot ship we come to know each other as only families do. We choose our amateur sailors not for experience but for companionship. Their personalities must be capable of harmonizing in close quarters.

Like the nursery rhyme's old woman and her many children who lived in a shoe, we are one big family, boys in the main cabin, girls in the two double cabins, and the Johnsons in the skipper's cabin across the stern.

Masts Serve as Exhaust Tubes

Yankee, a former North Sea pilot schooner, combines size, comfort, sailing ability, and strength—a marvelous ship for our purposes. Rigged as a brigantine, she carries square sails on the foremast, fore-and-aft sails on the mainmast, and staysails between the masts. When we have set 7,775 square feet of canvas and nylon, *Yankee* is a noble sight (pages 335, 365, 368).

For strength and durability, the yacht's hull is steel. Her lower masts are hollow steel. One of these tubes serves as an exhaust outlet for her Diesel engines, the other as a chimney for the oil-burning galley range. This arrangement keeps the smells, smoke, and noise clear of the deck.

Meals are served on the main cabin's balancing table, which remains horizontal no matter how the ship rolls. We sailed 45,000 miles around the world on one set of dishes (p. 328).

Our crew of young men and women, sharing the work and expense of the cruise, devoted 16 leisurely months to a trip that steamers make in four (map, pages 340-341).

Fourth Voyage Aboard a *Yankee*

We Johnsons—Irving, the skipper, and Electa, his wife—were making our fourth world voyage aboard a ship named *Yankee*. With us was our 12-year-old son, Arthur, who climbed the old schooner *Yankee's* rigging when he was 22 months old.

Our mates were Stephen Johnson, Irving's nephew; Jack Braidwood, and Frank Power. Charles Bothamley was the ship's doctor; and Donald Crawford, the only paid hand, was the [illegible].

Our seamen, mostly boys just beyond high-school age, included Jack Trovett, John Wright, Peter Sutton, Harold Campbell, Richard Bartow, James Wells, Alan Pierce, Eric Wolman, Raymond Moeller, and Edward Douglas.

Girls, who painted, scrubbed, and took their turn at the wheel, were Mary Booth, Louise Stewart, Mildred Young, and Terry Glenn. They were a little older than the boys.

Such was the crew when, at the end of March, 1948, we left Honolulu, which we described to readers of the NATIONAL GEOGRAPHIC MAGAZINE in the January, 1949, issue.

Right now, after a long, quiet stretch on the Pacific, we could sense the crew's dreaming of country-club dances, porterhouse steaks, and other hard-to-get luxuries. They craved excitement, and Malekula, New Hebrides, was just the island to provide it.

We Learn About the Big Nambas

Malekula is the home of the undefeated, uncivilized men of Melanesia—the Big Nambas, who dwell in stockaded villages beyond reach of missionaries, labor recruiters, and tax collectors. Until a few years ago they had a reputation for murder and cannibalism (page 341).

Big Nambas owe their tribal name to a peculiar item of dress. Below their fiber belts the men wear an enormous and extraordinary bunch of maroon-dyed grass which, with charity, might be called a loincloth. This bulky wrapper is the *nambas*. Other tribesmen, the Small Nambas, substitute a mere twist of banana leaf.

During the war Big Nambas were known by reputation only, to 300,000 servicemen stationed at or passing through Espiritu Santo, the big American base in the New Hebrides.* A few Yanks there acquired as souvenirs the Big Nambas' bracelets made from circular tusks of hogs.

We learned more about these tusks from a French planter who visited *Yankee* in Oletman Bay, Malekula.

Wives Nurse Pigs with Circular Tusks

"Pigs," he said over the coffee cups, "mean everything to these people, not for pork but for prestige. And it is not thoroughbred pigs that count, but those with circular tusks. The owner of such tusks, like the possessor of a million dollars, rises to a high social plateau.

* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Planting History in the Pacific," by Lt. William I. Draper, October, 1944; "Palms and Plants in the New Hebrides," by Maj. Robert D. Heard, Jr., August, 1944.

Sailors Found Tossing Typewriters with Arms Resembling Praying Mantis Legs

[illegible]

[illegible] by [illegible] demonstrating [illegible]

The [illegible] Big Numbers [illegible] triples.

[illegible]

The [illegible] Big Numbers. [illegible]

[illegible] Big Numbers [illegible] John [illegible]

[illegible] the Government. [illegible]

Wives' Front Teeth Knocked Out

[illegible]

[illegible] Big

Howard Woods Bent Dancer's Two-inch, Solid-steel Traveler Bar Six Inches out of True

[illegible]

Nambas [illegible] but a hat with a long [illegible] In our party were [illegible] their leader back. Cringing, the women shrank out of our path behind [illegible] Over the [illegible] had [illegible] a [illegible] [illegible] upper [illegible] and shoulder out.

Meanwhile the men came out to look us over. In addition to the coconut-fiber hats and [illegible] they wore bone or wood nose plugs [illegible] of fuzzy hair, and [illegible] expressions. That was all.

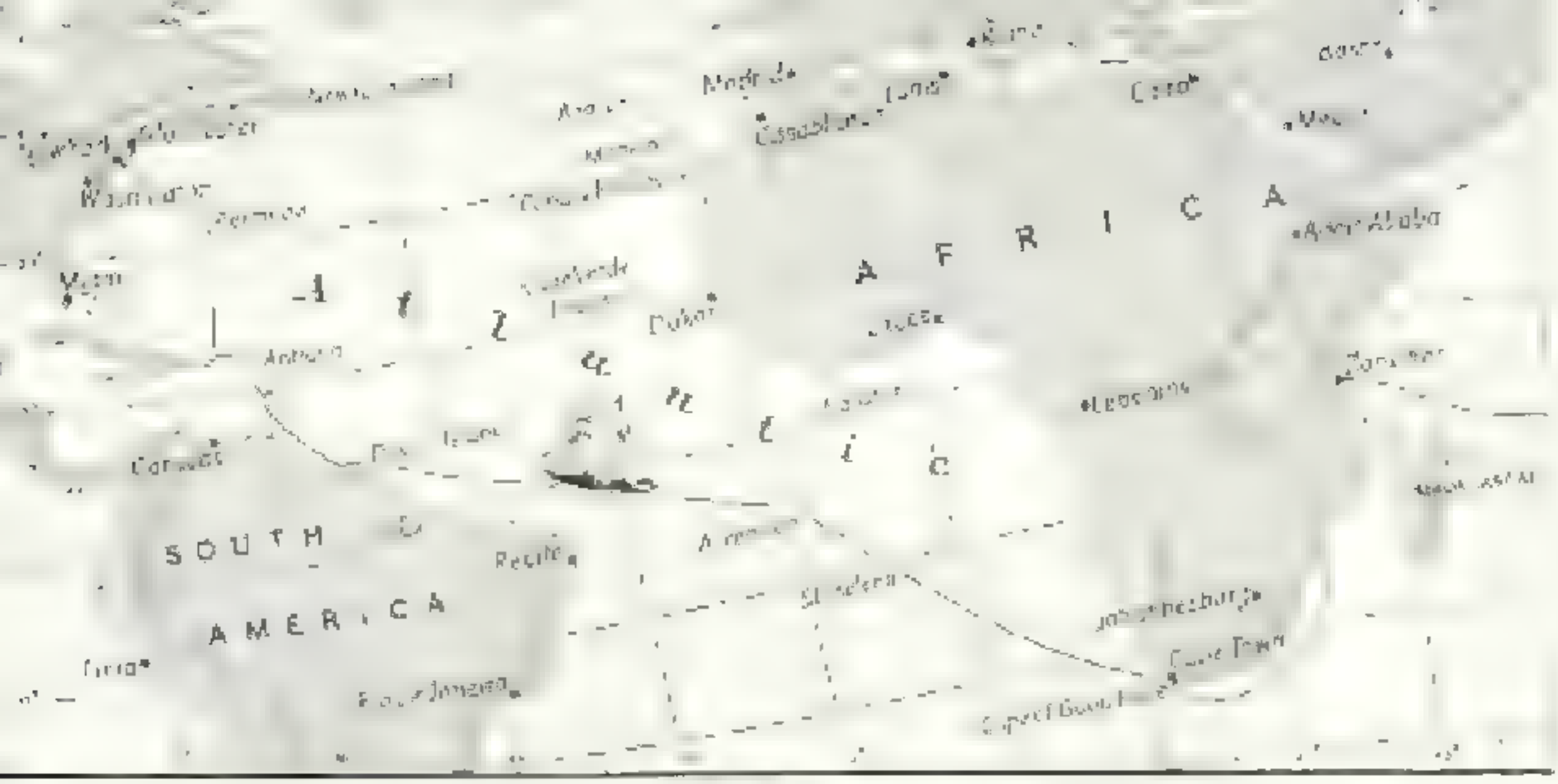
Through John's interpretation we learned we had arrived too early for the chief's installation. We could come back, the men said.

We kept the date. Sixteen [illegible] by five native carriers [illegible] days later. Entering the village we [illegible] a [illegible] quarter-mile-long glade cleared in the [illegible] a dancing ground. Many 12-foot-long [illegible] were ready. Nearby, [illegible] upright [illegible] bundles of coconuts and five-foot [illegible].

Dancers Make Up in Orange and Black

Our hosts gave us shelter in an unfinished thatched house which evidently was being used as a [illegible]. In front hung bead dresses hung from its [illegible].

We ventured into the village, taking care to keep on the fringe of things, and wandered



Hurrah! to Gloucester: the Second Half of Lord's Delightful World Voyage

Commercial cruise ship circles the globe in four months. Voyager, starting from one, does it in 18. Her crew [illegible] Melanesian dancers, traded with tattooed Polynesians, and courted a Malay princess.

into a jungle glade. There 60 dancers, like actors behind stage, were decking themselves out. Two make-up artists worked on each performer.

Already brown bodies had been painted pitch black from the waist up. Now a coat of orange was applied from the belt down. Bean-pod rattles were attached to ankles and colored tassels to belts. Fans of leaves were tucked under belts to simulate tail feathers.

Finally, enormous feathered headdresses were attached by wooden skewers thrust up through wiry hair. Each dancer leaped high into the air to test the stability of his 4-foot bonnet. A thousand feathers shivered.

Boom! boom! boom! The tom-toms were sounding. Sixty-four dancers, advancing out of the jungle, lined up beneath the yam posts in four columns. Half black, half orange, they towered 13 feet in their high shakos.

With balletic precision the men started lancing. Columns of fours became single files and squares turned into circles, but the incredible spectacle never stopped for a moment. With each step 64,000 feathers shook, 128 ankle castanets rattled, and 64 tails swayed.

Meanwhile, women in maroon headdresses occupied the sidelines. They swaying back like seaweed in a current whenever the men drew near. Their cringing, we learned later, was just a form of politeness, like our bow.

As darkness set in, we returned to the unfinished house for a campfire supper, but the dancers took no intermission. Eerie bonfires lit their dancing ground; drums beat louder than ever.

Such a savage din filled the air that we found it overpowering. Our five mission boys, equally cautious, crouched beside the campfire.

We stretched out on piles of coconut fronds, but the ominous tom-toms permitted only fitful slumber.

At times we awoke to the light of torches borne past our shelter. Occasionally a torch-bearer peered into the hut and, as we held our breath and said our prayers, quietly went away.

A Black Goblin Counts Us Off

One shadowy figure ventured in. We watched like children pretending to be asleep as our visitor, torch held low, made his way from one recumbent figure to another, like a warden counting prisoners in a cell block. No one dared say a word, but Irving, who was going to resist if necessary, grasped his heavy kodiglet as a club and prepared to sell our lives dearly. Finally satisfied, the inspector departed.

Daybreak halted the dance and stilled the drums. Spirits recovered, we awaited the sacrifice of pigs. No such ceremony was given.

Instead, the coconuts and yams were distributed as gifts. Burly warriors [illegible] college boys after a football victory, [illegible] 200 yam sticks from the ground like goal posts (page 334). They distributed the presents and savage yells.

At this interesting moment something—perhaps it was the sight of human skulls on sticks our crew was trading for—alarmed our missionary boys. "Master, master," they pleaded, "more better we go along salt water. No good here any more."

We took a last look at shouting mob and falling yam posts and attempted a poste restante bye. Our hosts ignored us completely—a

The Bluejacket Sails Where Adventure Beckons; She Shows Uncle's Bonus Hands

During a 45-mile voyage sailors bartered tobacco for pearls and inspected Cocos Islands' celluloid money. They visited St. Helena, scene of Napoleon's exile, and Devil's Island, site of French convicts run loose.

breach of manners which all of us were happy to overlook.

While deep in Melanesia we turned our attention to two Polynesian outposts planted nearly a thousand miles west of their kind, possibly by canoe wrecks long ago.

On Tikopia, which lies north of the New Hebrides, *Yankee* was welcomed by swarms of outriggers (pages 336-339). Beneath streaming manes red-dyed with lime, the canoemen reminded us of the savage Polynesians of the woodcuts illustrating the books of old-time Pacific explorers. Just such mobs besieged Captain Cook's ships.

Afraid to let the men on board, we traded fishhooks and knives over the side for mats, fans, bowls, model canoes, tapa cloth, and tattooing instruments.

Chief's "Belly Belong Me Full Up"

On the Stewart Islands, the second Polynesian outpost, we found women draped in sarongs, garments. Old wives tucked theirs high under the arms, but girls started the "neckline" around the hips (page 353). Some wore a bib-and-collar which, when they danced, bobbed up and down, concealing [illegible].

[illegible]-island's chief took lunch aboard *Yankee*. Manifestly half-starved, for food is not plentiful on these low islands, he gorged on beef stew until he arose and announced, almost painfully, "My word, belly belong me full up!"

In the Solomons, *Yankee* sailed into the Slot to an anchorage off Guadalcanal (page 349). Four Allied cruisers sunk in a single night in 1942 lay almost beneath our keel. We toured Henderson Field and Edson's Ridge, where the Marines made history. Irving alone among us was able to picture the jungle-grown battlefields as they were, for he had charted these environs with a Navy survey crew.*

One night *Yankee* felt her way into Mbili [illegible] Florida Island, and tied up to shore with her yards sticking in the trees (page 352). There we discovered a wartime pipeline which used to carry water from the hills.

Now if there is any luxury which our crew truly appreciates, it is a superabundance of fresh water. *Yankee* carries 4,000 gallons, enough to satisfy thirst but not laundry or bath. We scrub ourselves in waterfalls, rivers, and rain squalls. On visits ashore we beg baths from newly made friends. We have studied the bath situation all around the world (page 349).

The pipeline, naturally, was a delight. We flushed out the rusty water and turned on the tap full blast. For an afternoon we reveled in a clear, cold stream. We washed clothes and hung them on deck until *Yankee* looked like a laundry yard.

Native Scavengers Hunt War Supplies with Zest

Many Solomon islanders, we observed, were engaged in a treasure hunt, not for pirate gold but for war's leftover supplies.

Since these goods could not be transported home economically, could not be sold, and could not be given away lawfully, they had to be destroyed. Refrigerators and canned

* See "[illegible] Navy [illegible]," [illegible] "Adventures with the Sunken [illegible]," [illegible] July, 1944, and "At [illegible]" by Frederick Simpich Jr., [illegible]

Scheherazade, a Sultan's Daughter, Performs a Ternate Island Dance

Twelve crewmen adored this Malay princess, who spoke English and drove a jeep. She took the boys touring her palace, then, in dancing costume, joined them inspecting the sea floor's royal wealth [illegible] Scheherazade's name comes right out of the *Arabian Nights*, but she protested to be called Kenny (page 334)

[illegible] drivers off duck eggs.

Natives have dug up barrels of oil and [illegible] of Chem Chi [illegible]. One chief wired his village for telephone service; another got electric lighting for a while from a gasoline generator.

Tipped off to a gasoline cache, we used it in our outboards the rest of the voyage.

Wartime's free spending is still felt in the Solomons. Yanks who paid $5 for a grass skirt left plenty of money but nothing to buy. We met natives, wallets bulging with bills, who begged us to sell shirts, shorts, and [illegible]

Since the war, natives have [illegible] the curious belief that an American [illegible] coming in a huge ship or plane. Labor [illegible] and racial equality are the expected [illegible] today's Santa Claus.

In [illegible] lagoon [illegible] Malaita, I met an islander who, looking [illegible] ship to exactly three [illegible] how to welcome it (pages [illegible])

Some of the islands in the lagoon are taboo to women, who can't even canoe past them on a certain side.

Northwestward now *Yankee* set sail for Rabaul, New Britain, to see what was left of the "most bombed spot in the Pacific."

[illegible] often that every building was shattered and 265 ships and floating craft were sunk in the harbor. Japanese defenders with pick and shovel dug nearly 300 miles of deep bulkhead tunnels. Into them they dragged themselves [illegible]

We visited [illegible] which used American parachutes for [illegible] Children [illegible] unexploded bells [illegible]

[illegible] on other islands Japanese imported African snails [illegible] for food. These slimy pests [illegible] an uncontrolled menace to crops. Ship bottoms they spread from island to island, and now [illegible] vigil to keep them out of [illegible]

In Jaluit [illegible] boys were challenged to a [illegible] game. They found themselves playing [illegible] before an all-Chinese audience. [illegible] by their sea legs, they stumbled into defeat.

We Trade Tobacco for Pearls

The Truk Islands, famous for pearls, were our next stop. We hitchhiked over the trail until we collected 145 lustrous gems, the

McKenna's Wild Men. Fresh from a Neighboring Ranch, Rio Salado Names from Boots

best of which cost Jack Trevett a paltry $8.

Virginia stick tobacco, of which we carried a case, proved a powerful trading currency. Smokers rolled it into cigarettes, using newspaper wrappers.

Scarcely able to believe that old newspapers were valuable, we ransacked lockers for copies and traded sheets and even quarter-sheets for use as cigarette paper. Newsprint did not buy pearls, but it did command curios such as betel-nut spatulas.

Picking up a fair wind, *Yankee* flew along the north New Guinea coast to Madang (page 356).

At Wewak, between Madang and Hollandia, we saw the ruins of 350 Japanese planes destroyed by an American low-level raid. One Zero, sitting in the administrator's pigpen, shaded his hogs with its wings. On rainy days the whole lot took shelter in the cabin by entering a shell hole in the plane's side.

We sailed into Hollandia, Netherlands New Guinea, one midnight. The harbor master, turning his searchlight on us, was so amazed to see a sailing ship that he came aboard. He was more astonished at finding a woman at the wheel and another signaling to the engine room. Our visitor was convinced that females ran the entire ship until he heard a masculine voice up forward singing out, "Hard aport! Back full!"

Dutch Enjoy War's Leftover Comforts

Thousands of Americans have passed through Hollandia, which was General MacArthur's springboard for the attack on the Philippines. Here as elsewhere the Yanks left mountains of equipment.

Thrifty Dutchmen, having bought this material, convert every profitable item into cash. They make themselves comfortable in Quonset huts; they enjoy hundreds of miles of American-built roads. MacArthur's "million-dollar" headquarters, moved from its site on Lake Sentani, serves as the Dutch Residency.

On Biak Island, another war base, we took an air tour above a warplane graveyard. On the field sat a thousand four motor bombers. From the air they appeared to be in perfect condition, but a bulldozer had broken their backs to prevent illegal use (page 345).

Stone City Sue, Eight Ball, Oklahoma Rose, and *Who Dat?* The planes' names revealed the spirit of their gallant crews. Painted rows of bombs tallied their scores. One had 136 missions.

Now we were getting away from the South Seas and entering the Orient. Somewhere between New Guinea and Borneo and south of the Philippines, we were to cross Wallace's line, named for Alfred Russel Wallace, co-discoverer with Darwin of the origin of species. This invisible line divides Australian-type fauna, such as kangaroos, from Oriental beasts like tigers, elephants, orangutans, and rhinos. Some channels only a few miles wide separate these divergences, which reflect the cleavage between Asiatic and Australian land masses.

We could have drawn a similar line to divide our cruise into its South Seas and Oriental phases.

Crew Courts a Malay Princess

When we anchored off Ternate, one of the Moluccas, we were definitely at the threshold of the East. Proof positive was Scheherazade (her real name), Moslem-Malay daughter of a Sultan. As her father was away, the princess undertook to be our hostess (page 332).

Scheherazade called herself Rinny, pronouncing it Ree-nee. Seventeen and beautiful, with smooth Malay skin and huge brown eyes, she captured the crew's affections. Commander of a jeep, she took the boys touring her island and spoke to them in English acquired as a war refugee in Australia.

Rinny's cute Western ways intrigued the crew. The boys plagued her with questions: "Can you marry anybody you wish? Does he have to be a Mohammedan? Why don't you come to the United States?"

We overheard Jack Trevett saying, "Gosh! If the fellows back home could hear me calling you 'Princess,' they'd die!"

Visiting the ship, Rinny reveled in our phonograph records and she thrilled the crew with her own singing.

Rinny Goes Diving in a Helmet

In her father's palace, a half-timbered structure, Rinny put aside her Western ways and became the Malay princess of batik sarong, embroidered silk jacket, and jangling diamond earrings. She presided over a retinue of servants.

Our hostess showed us the palace treasures—curved swords in silver scabbards, antique pistols and ballet molds, and shining helmets with bird-of-paradise plumes, many of them relics from the 16th-century Portuguese occupation.

Our farewell day in Ternate found the Sultan's daughter down under *Yankee's* keel in dungarees, navy shirt, and diving helmet. The boys were showing her the wonders of a coral formation.

It was time to go.

Her pretty hair still wet from the dive, Rinny jumped into her jeep and drove away.

Globe-circling Dawson's Crew Sets the Topgallant Sail to Clash Indian Ocean Trades

[illegible]

Romantic Contrasts from Tokopa Mob Border Just as Pacific Islanders Boarded Captain Cook's Ships Two Centuries Ago

Widowed, Gloating Tikopians Surround the Sapsuc's Dog's Unmoving and Statue-Like Pal to Satisfy Their Curiosity

[illegible]

Dandee, Afraid to Trust Her Savage Visitors, Allows Only Two to Come Aboard

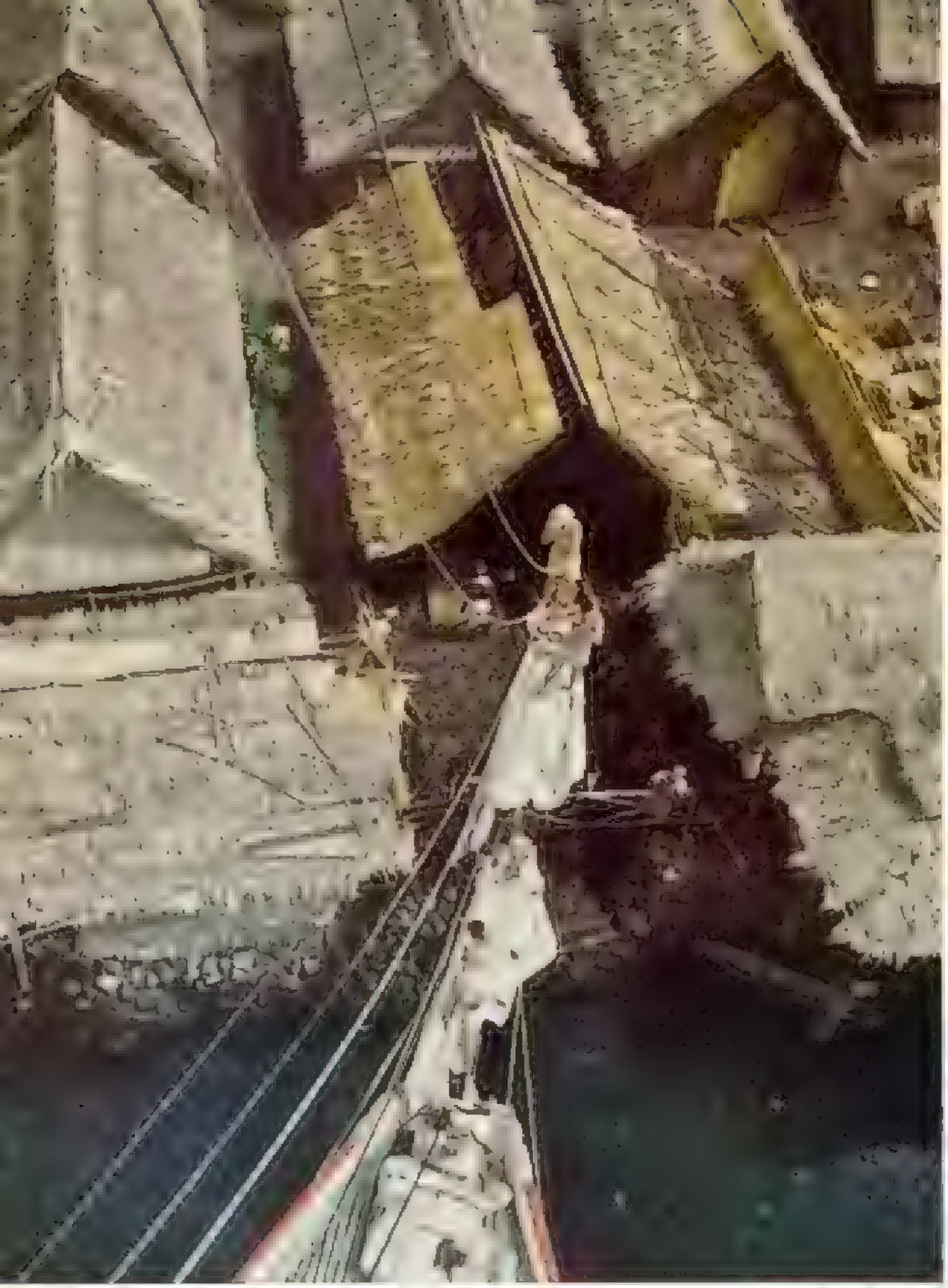
[illegible]

An Arrangement of Tussock Cherryberry Clusters Around the Slopes Sweetgrass Scarp

[illegible]

Skipper Johnson Crosses the Slough Across a Shallow Lagoon

How to Shoot Easier Bow Bow and Arrow



London: Prowling Langsburga Water Frogs, Sacks Her Nose into a Thatched Village

As *Yankee* passed the palace, we saw her, a lonely little figure, waving good-bye from the balcony.

Al Pierce waved an ensign, Frank Power swung a bright Tahitian pareu, and Pete Sutton blew the ship's horn.

"Good-bye, Princess; good-bye, Rinny," we all cried.

Arthur, the Reluctant Scholar

Another parting awaited us in the Philippines. The time had come for Arthur, our eldest son, then 12 years old, to go back to school in the United States.

It had been a wonderful year for Arthur, who enjoyed every bit of the ship. He spent hours decorating his bunk, but deserted it at the slightest excuse to sleep on deck.

Ever ready to investigate any island, Arthur peered into every hut. Dealing in mirrors and five-and-ten jewelry, he excelled us all in trading. He neglected no opportunity to collect stamps or sea shells.

One dark cloud obscured Arthur's sunny days: that was school in the after cabin, with his mother for a teacher. Arthur, who was doing a sixth-grade correspondence course, never ceased to think of schoolwork as drudgery. We can hear him now, pacing the cabin and muttering, "I wish I was free."

School at sea, vacation in port—that was the rule.

In Davao, Arthur managed a brave departure, but a passport picture taken in Manila showed a downcast boy, a far different fellow from *Yankee's* eager diver and explorer.

Robert Joins Up

With his mother at his side, Arthur watched the liner *President Monroe* bring in his grandmother, who was to take him home. The first passenger off the gangplank was 9-year-old Robert, Arthur's brother, who was to sail with us the rest of the voyage (page 348).

If it was a job for us to divide the world up between our two boys, it was a matter of confusion to the immigration authorities who had to effect the exchange of the children. Plainly, the problem staggered them. In the Immigration Office the boys, who look alike to strangers anyway, got restless, changed places, and baffled the authorities still more. It is a wonder they let us go.

Arthur, carrying a pair of water-buffalo horns, wistfully moved aboard the liner. Robert and his mother joined the brigantine in Zamboanga.

Yankee gave us a weird passage across the bar into Bangkok, Thailand. Though Irving followed the navigation ranges at the mouth of the muddy Chao Phraya River, which winds into the city, the ship struck a bar where none should have been. Observing small boats sailing across the chart's "shoals," the skipper followed them and found deep water.

Bangkok Fascinates the Crew

Obviously the channel had changed, but Thailand pilots, not wishing to make navigation easy, had declined to buoy the course.

Yankee berthed a delightful, fascinating two weeks in Bangkok.*

The muddy Chao Phraya swarmed with junks, lighters, sampans, and river steamers (page 350). We never tired of watching them scurry by like pedestrians. Once we counted 46 barges towed by one steamer. Restaurants, drink stands, and school buses were all little sampans.

A tour of the main canal revealed an amphibious community where houses built over the water used sampans as doorsteps.

Ashore, the bazaars were just as interesting. Thomson is of little places combined shops with homes. Living quarters were in the rear, but babies, swinging in net cradles, always seemed to be up front.

Crocodile Leather and Live Birds

We inspected chub, silver, crocodile leather, books, paper lanterns, and live birds. Food stalls offered bright tangerines, pomelos, bo tutaus, mountain apples, durians and other exotic fruits, fish, and hunks of red meat.

Food was cooking everywhere. Fried pancakes appealed to our appetites, but who knew what germs they harbored?

While the rest of the crew journeyed to Indochina to see Angkor, the Johnsons entrained for northern Thailand to watch elephants at work in a teak forest. The sight of them pushing logs into a river with their tusks—"elephints a-pilin' teak in the slodgy, squdgy creek"—was enough to delight poet or photographer.

We intended to take an elephant ride, but these beasts would not cooperate with strange white people. They regarded us, we thought, with downright hostility.

A small Siamese boy, we learned, is always safe with the family elephant. Usually the animal outlives his master and goes to work for the son.

After a brief stop in Singapore we visited the island of Bangka to witness the mining of tin from a diked-off area in the open sea.

* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Scintillating Siam," February, 1947, and "Land of the Free in Asia," May, 1954, both by W. Robert Moore.

Ebb Tide on Zanzibar Leaves a Muddy Promenade for Arab Dancers and Fishermen

A Thousand Weary Warbirds Crumble into Dunes on Rink Island. Abandoned B-24's Illustrate War's Wasted Treasure

Zanzibar's a Maze of Narrow Chasms

Most Zanzibar city streets are [illegible] wide enough to allow one rickshaw to pass. [illegible] the Other Side. [illegible] separates the two

In Bangka Strait we had a narrow escape from a wreck. Fortunately it was a moonlit night, and Dick Barlow, alert at the wheel, spotted two big masts sticking 30 feet out of the water. He swung Yankee around just in time.

Small Loss Found in Bali's Chasm

Luckily, too, we found small loss in Bali's chasm as a result of the Japanese occupation.* Only one [illegible] apparent: [illegible] were wearing more clothes. [illegible] American money made [illegible] heap that we moved into the best hotels: a dollar a day covered room and meals.

Traveling, we made trips in [illegible] and found new friends everywhere. Jack Trescott teamed up with a British[illegible] and climbed Agung, or Peak of Bali, a 10,000-foot volcano dominating the island. Robert spent two weeks with [illegible] ashore and even visited [illegible] prison. The Balinese [illegible] of a foreign artist posed for us in [illegible] called sarongs (page 362).

We suspect that Robert neglected yachtboard's regular hours for we saw him late one night at an extraordinary monkey dance. One hundred and fifty men, [illegible] performing around an [illegible] fire, swayed in [illegible] and uttered chippering monkey noises.

On other nights we watched curious trance dances in which young girls performed like hypnotized Trilbys. We had [illegible] time photographing the [illegible] dances (pages 360 [illegible]).

Passing south of Sumatra [illegible] found a strong fair wind [illegible] way to the Cocos, or

* See in the National Geographic Magazine [illegible] Dr. [illegible] Wilson, [illegible] Mr. [illegible] Mr. [illegible] Mr. [illegible] Mr. [illegible] Mr. [illegible] of Bali: [illegible] Knott, March

[illegible]

Tropic Breezes Lure Crew Members Up on Deck for a Balmy Night Beneath the Stars

[illegible]

[illegible] house of the remarkable Ross family.

Various generations have been described as kings [illegible] of Cocos [illegible] as well as the Crown. Five generations of Rosses have ruled the islands like owners, judges, and kings. [illegible] Malays [illegible] 12 [illegible] they now [illegible] numbers.

Queen Victoria granted [illegible]

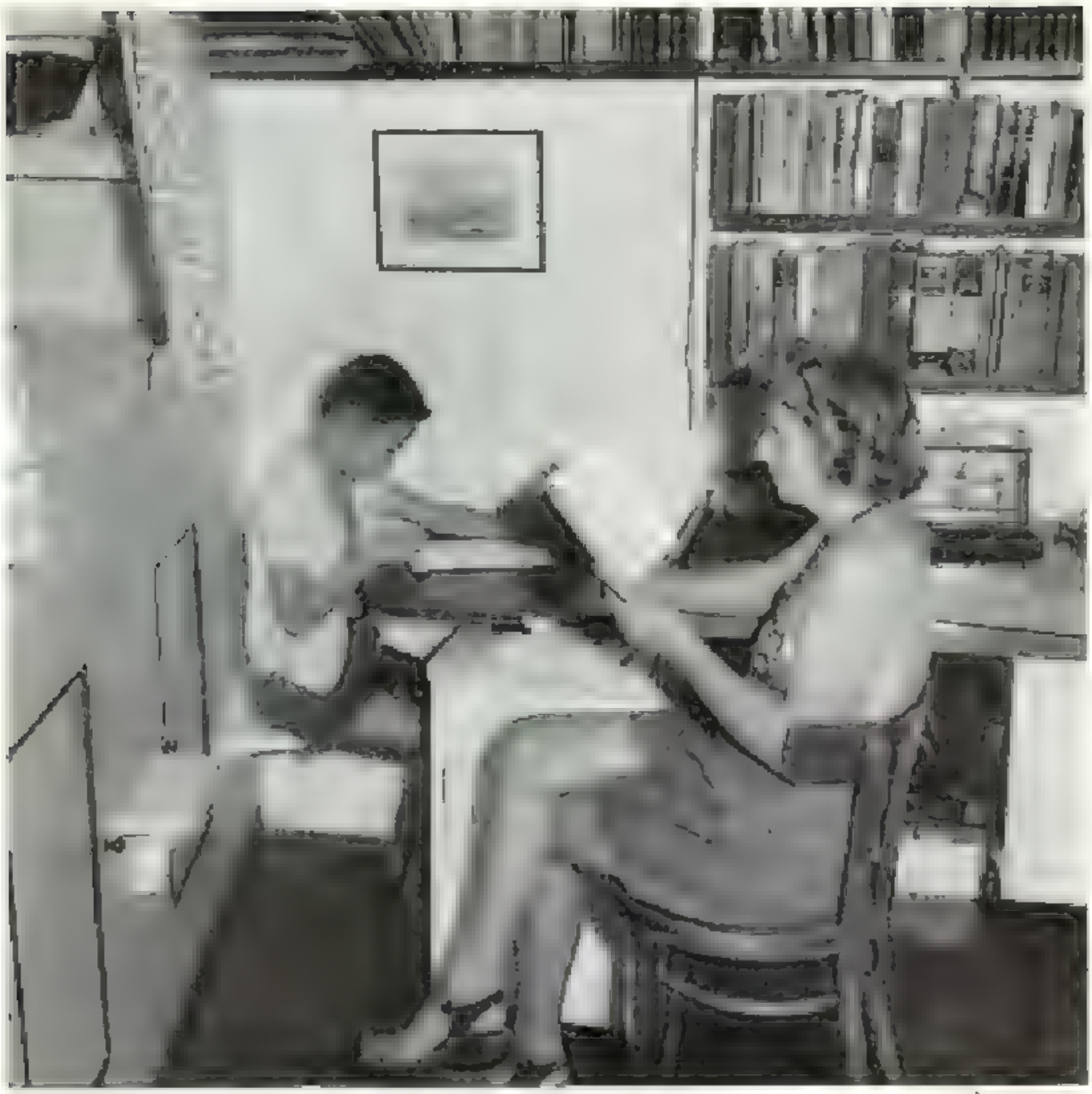
Landing on Home Island [illegible] coconut plantation, we were greeted by all the children of the Malay [illegible]. They trooped along with us [illegible]

[illegible] the streets neatly paved with coral and led us to the [illegible] Ross [illegible]

[illegible] the first [illegible] John Clunies-Ross, who [illegible] Mary [illegible] established his kingdom.

The present Ross [illegible] Mary [illegible] We [illegible] the family home [illegible] He had [illegible]

[illegible]



"Gosh, Mom, This Old 'Rubbaube' Is No Fun!" Robert Takes a Dim View of School

Young John [illegible] and [illegible] the local stores because [illegible] rule. When we returned to the United States [illegible] about the world. Here Elsie [illegible]

[illegible] Japanese [illegible] true.

A [illegible] showed the latest lord of the [illegible] 26-year-old John Clunies-Ross. A [illegible] English mother and product of [illegible] education. He was away from home.

Cocos Money Is Made of Celluloid

We wondered whether the islands or the money would claim John's interest. Already the Ross holdings on phosphate-rich Christmas Island, also an early family settlement, had been sold. Now there was talk of selling the 1,800 Malays on Borneo and [illegible] recruiting [illegible] If [illegible] Malays [illegible] would [illegible] the Malays [illegible] impression of having one of [illegible] communities we [illegible] problem [illegible] the [illegible]

Between Cocos and Zanzibar, our next stop, lay 25 days of sailing across the vast [illegible] Indian Ocean. These delightful [illegible] days we devoted [illegible] [illegible]

A Battered Hulk Seems Poised to Slip Beneath the Waves: Guadalcanal

Robert Presides Over a Swimming Party in Tarawa's 14-Foot Depths

half our new book, *Yankee's Wonder World*.

Robert was the disappointed one. He wanted a cyclone, and all he got was 25 consecutive school days. Robert loved school no more than Arthur. He demonstrated enthusiasm for shipboard crafts but dislike for fifth grade books. Reproached for this attitude, the boy explained what he called "the difference between learning and teaching.'

"If it is something you want to know," said he, "it's learning. But if you don't want it, it's teaching."

Zanzibar's Strange Sights

Bright moonlight flooded white Arab buildings as we arrived at our African destination one morning at 2 a. m. The island was Zanzibar, clove plantation, ivory emporium, and former slave market (page 344).

The clove trees were suffering from a blight called "sudden death." Some elephant ivory was still coming in from the mainland: we saw curving tusks carried on naked black shoulders. Trading in human flesh was no more, but old barred windows suggested the perils of slave times, and some houses were considered haunted because slaves had been sealed alive in their masonry.

Our boys, exploring the town, wandered into alleys so narrow that they could touch buildings on either side (page 346). They quickly got lost among the curving streets. There did not seem to be a right angle in all Zanzibar. It was useless to ask directions; no resident could point out a straight line.

By dint of wandering we eventually found the bazaar, where we bought fresh provisions for the ship. The fish market offered shark, sailfish, eel, barracuda, skate, and albacore. Dealers sharpened knives razor sharp, flourished them, and invited us to buy. Cats slunk around corners; stray goats pawed the pavement.

Porters with huge loads shouted for passageway through the shopping mob. Bearded Arabs, curved daggers at their waists, strode by in long white robes belted with [illegible]. Tall Indians walked in Nehru-style tunics and trousers. Africans in rags and tatters loped past; others bounded full white nightshirts.

Christmas Turkey from an Oriental Bazaar

Swahili women wore reds, oranges, and blacks. Moslem ladies veiled themselves in baggy black until only their eyes, peeping out of cloth cages, were visible.

Barber and customer sat cross-legged on the ground, one shaving the other. Tailors worked in cubicles just large enough for man and sewing machine.

Among these Oriental surroundings, just about as far from America as it was possible to get, we bought our Christmas turkey.

The second Christmas of our voyage was celebrated between Madagascar and the African mainland. Pete Sutton led the singing of carols. The girls distributed presents to everyone on board. Our Zanzibar turkey, a tender bird, turned up for dinner on *Yankee's* balancing table.

We were rounding the Cape of Good Hope when a southwester of almost hurricane force tested the *Yankee* as neither she nor her predecessor, the schooner *Yankee*, had been tested on our four world voyages.

We doused all but two tiny sails, but these heeled the brigantine over until her lee bulwarks dipped into the sea. The wind's pressure on the main staysail's solid-steel traveler bent that two-inch rod six inches out of true (pages 329, 365, 370).

Loose lumber on deck was set awash. Below, Steve Johnson was tossed out of his bunk. He picked himself off the cabin floor and went back to sleep. On awakening he had no memory of the tumble and refused to believe his shipmates until bruises confirmed their story.

Robert, wide awake in his bunk at the height of the storm, asked, "What sails are set?" Upon learning, he whooped, "It's my, only two!" Clad in oilskins, he spent the rest of the night on deck. He loved every bit of the storm, and not only because it meant no school.

Yankee, grandly proving her seaworthiness, rode every mountainous sea. Most of the time her deck was dry, and it was never necessary to shut the two companionways. Our amateur crew, real sailors now, met every emergency, and they stowed away three meals a day.

Cape Town Recognizes Us from Pictures

It was raining when we put into Cape Town January 22, and that evening, as we danced in evening clothes, the patter of raindrops on windows mingled with the strains of soft music, a medley more comforting than the screech of wind through the rigging.

Progressive South Africa seemed a lot like home.* The climate, when it was not raining, was Californian. Stores were full of American goods. The people were extremely hospitable.

Every day Cape Towners came aboard inviting us to sample home cooking or take tours.

* See, in The National Geographic Magazine, "Lo! That Gold and Diamond-Rich Hill," December, 1942; and "Bay Corner—the Cape of Good Hope," August, 1942, both by W. Robert Moore.

Like a Gothic Spire, a Threshed Temple Soars 80 Feet Above Maprik, New Guinea

Darkness Rises Up to Trees on Bermuda Island. Birds on the Wards Could Pick Their

▲ Polynesian Kyes of the Stewart Islands
Give Small Mention to Wardrobes

▼ Efate Dancer Rises as Pagan Regalia
Do a Ghostly Dance by Torchlight

War's Lawless Waste Impressed the Travelers—Robust Jungle Closes Over Japanese Guns

[illegible]

▲ New Guinea Girls in Mother Hubbards
Vest Dresses and Sarongs in Wonder

▼ Skipper Conducts Class on Deck
for Amateur Navigators

Women at the Paradise, Mare [illegible] Digaru: a New Guinea Family

Scenes of Wealth, Protected by Their Dry Inclosures in Regardless, Unless Western Cousins Frames from a Crazy Quilt

Sails of a Makassar Prau Droop as a Javanese Crew Waits the Brisening Speeds By Using Her Diesels

Soaring, Tiered Temples and Teeming, Muddy Waterways Fascinate Visitors to Bangkok, Thailand's Amphibious Capital

Girls Gesture and Sway in Unison, Boys Sway and Clap. Balinese Dance at a Temple Gathering

Dancers in Rich Brocades Display Fan-shaped Crowns with Flowers; Arms Were More than Legs

Artist and Model, Belgian and Bahuvan, Are Husband and Wife

Lyndon Johnson Carries the 'Load' —Carries Collection in Belt

[illegible]

English Harbour, the Ghost of Antigua's Mighty Naval Base, Shelters Yachts as It Once Protected Nelson's Ships

[illegible]

Israel Lowder Returns to Gloucester Fishing 2275 Feet of Canvas

[illegible]

A Southwester Wins a Knockout Round: Dredger Tests Her Stamina Off Cape of Good Hope

All over town crew members were recognized and hailed as fine under fellows, appearing in the Saturday Evening Post, whose January issue, just out, hailed the first half of our voyage. Even as we dropped out of the sky hundreds of miles inland, a farmer met our plane with word that he had been [illegible]

We were interviewed and photographed [illegible] radio about sailing around the world with a crew of young men [illegible] prospered [illegible] articles on strange places we had visited.

We Peep into Napoleon's House

Our next stop was St. Helena, the South Atlantic [illegible] where Napoleon spent his last years in exile.*

Blue, the main crop, waved its big blooms all over the island [illegible] were [illegible] by the kindly [illegible] [illegible] brought [illegible] to [illegible] Atlantic [illegible]

A Miniature *Yankee* Sails Across a Tempting Pie

[illegible]

Napoleon spent much of his St. Helena exile quarreling with the British Governor.

When the Emperor died, his aide had a dispute with the Governor concerning the inscription to be placed on the tomb. As a result, the French decided [illegible] so the big white marker stands without so much as an [illegible] iron fence, is still tended, though the Emperor's body was removed to France [illegible]

[illegible] Napoleon's last [illegible] repair, [illegible] only [illegible] work was so rotten that the [illegible] together. [illegible]

[illegible] Volcano

[illegible] Ascension Island, where so many warships refueled on flights across the South Atlantic [illegible] In wartime the island held 3 [illegible] Americans [illegible] their wooden huts [illegible] The abandoned airfield, preserved by the [illegible] climate, seemed in good condition.

While *Yankee* lay at anchor off Ascension [illegible] off her hull within half an hour. No [illegible]

* See "St. Helena, the Forgotten Island," by [illegible] National Geographic Magazine [illegible]

Under a Cloud of Canvas, Yacht Passes New York's Ferry Slips

scraper could have done a better [illegible]

[illegible] we [illegible] a thousand miles a perfect [illegible] mounted [illegible] weather. These extra nylon sails, patterned after those of the old China tea clippers, [illegible] to give us [illegible] The crew [illegible] so proficient that [illegible] watch could set [illegible] thing sail in eight minutes.

Devil's Island Convicts Run Loose

France was closing [illegible] when we [illegible] to the Iles du Salut, commonly known as Devil's [illegible] turned away by wardens, we were welcomed instead by prisoners.

About 65 convicts, all pardoned, were still [illegible] waiting for a [illegible] home. They were [illegible] to get their first glimpse of the world in 20—in [illegible]

With freedom so near, the men took pride in their prisoners' evil reputation. They cheerfully recited their [illegible] to us [illegible] obtuary [illegible] the site where [illegible]

[illegible] and [illegible] were [illegible] dressed [illegible]

Arriving at Antigua, one of the West Indies, *Yankee* stopped three days in English Harbour for painting. She tied up to [illegible] used by Lord Nelson's ships [illegible]

On the run to Bermuda we [illegible] tropic voyaging. Shivering from unusual cold, we examined the thermometer and read 68°! As we voyaged farther north, the mercury fell into the low forties. Lavers's woolens could not shut out the chill.

Putting our tulip to work, we started out landings ashore with temperature calls [illegible]

John Wright Feels Sure the Yanks Are Coming

He Check [illegible] had to "hose off" for his [illegible] dental [illegible] Dick Barrow is not ready to [illegible] polar [illegible]

We Sail Through New York Harbor

For this homecoming [illegible] up New York Harbor [illegible] skyscrapers [illegible]

[illegible] Cruise the West Indies" [illegible]

"All Hands, Down Mainsail!" Windlashed, *Pamlico* Runs through the Heart of a Gale

[illegible]

A newspaper plane buzzed the ship for photographs as we sailed past New York's Battery, but did not notice us. Passing [illegible] with office-bound workers, we [illegible] passengers who gazed [illegible] canvas.

Tugs Chase Yankee Up East River

[illegible]

And so, flying 7,775 square feet of canvas, [illegible] setting sail [illegible]

"Down stunsails! Fast topgallant! [illegible] Fishermen!" "Down mainsail!"

[illegible] just 14 months and 4½ minutes from the [illegible] left.

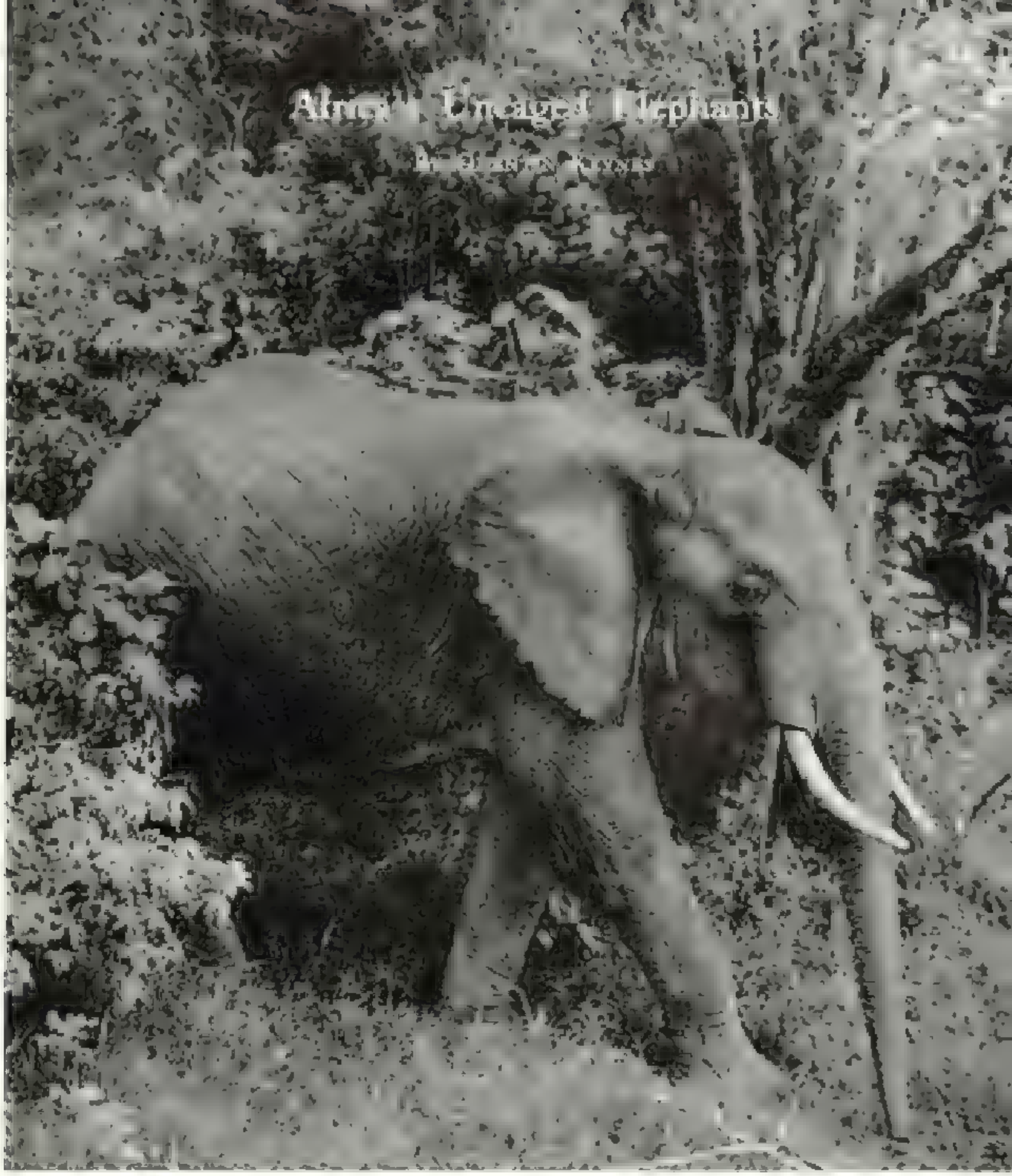
The [illegible] for being late and [illegible] to be [illegible] on the 15th [illegible]

Crew members met that night for a farewell [illegible]

"We [illegible] world [illegible]"

[illegible]

Alnwick Unrigged Elephants



From This Tree House the Author "Captured" 67 Elephants

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Hayful Pachyderms Rub Noses Tough Tusks

As if Rehearsing for Circus Parades, Elephants Strike Arms in Single File

Drinking Is an Evening Ritual for Thirsty Bulls, Baboons and Cows

[illegible]

Elephants Love to Guzzle and Frolic in the Cold Water Hose After a Long, Hot Day Browsing in Forests

[illegible] between drinks. Here trunks suck up water [illegible] Elephants also [illegible] long day [illegible] blue [illegible]

In Elephantine Rage, Single-tusker Turns, Attacks Rescuers' Car

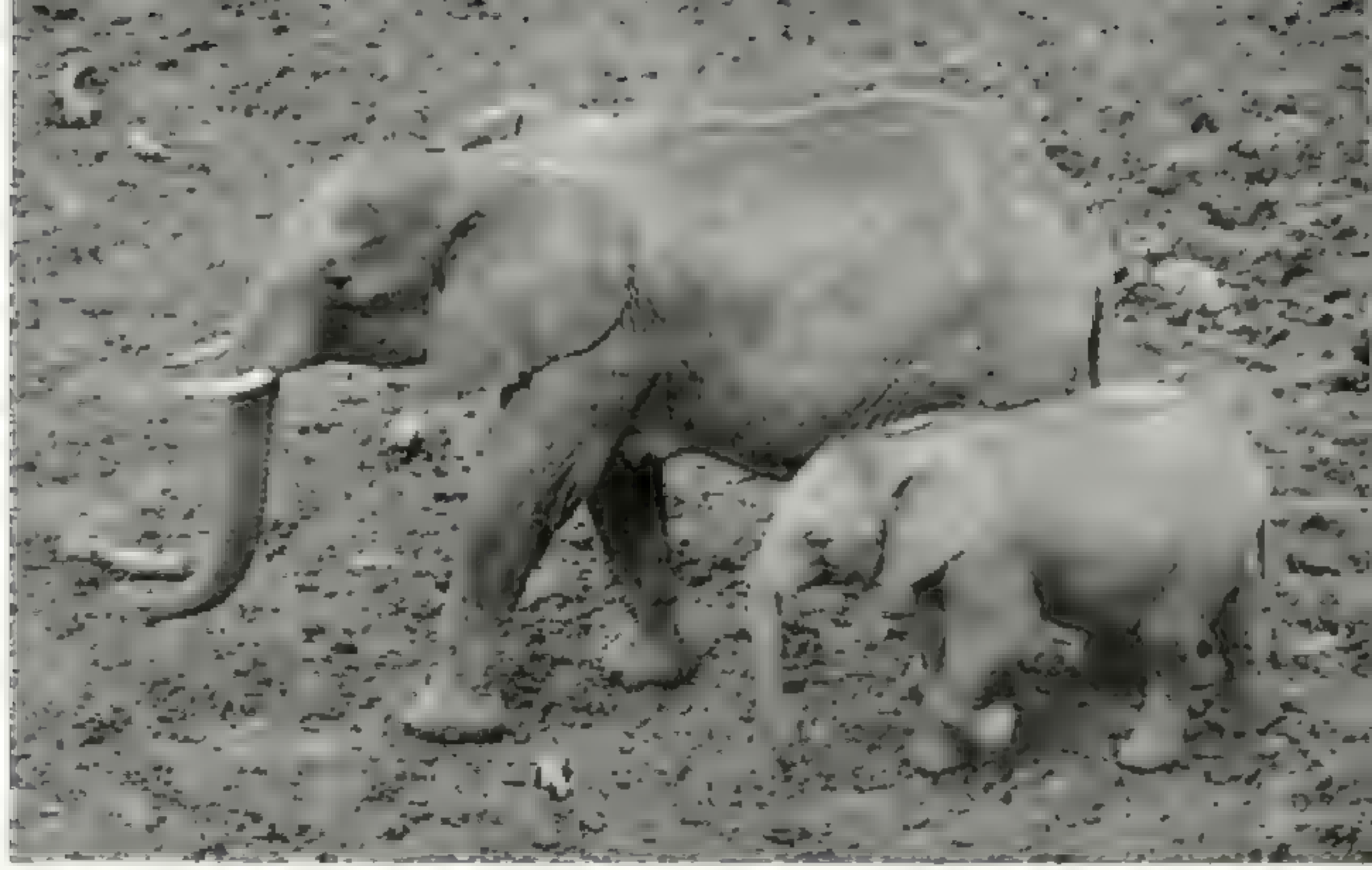
Thirty-three Elephants in One Place Make a Rare Picture, Yet This View Shows Only Half the Herd

[illegible]

When Its Prey Finds the Predaceous Feeds, Feels, Drinks, Works, Sees Danger, and Fights

Little Two Shelters under Jumbo

Tusks and Trunks Do the Talking



Gas Guards Her Gulf for Four Years

A [illegible]

Angry Residers Square Off for a Fight

[illegible]

For Reasons of Her Own, This Aged Cow Remains Apart from the Herd

The Caves of the Thousand Buddhas

By Franc and Jean Shor

With Illustrations from Photographs by the Authors

TWO THOUSAND years ago, when the center of the world's civilization still lay in the East, the Great Silk Road carried the treasures of China to India and Persia. Winding west from Siking (Sian or Changan), China's ancient capital, in Shensi Province, it emerged from the Great Wall of China at Yumen, the "Jade Gate" of the west.

A little farther west, near the thick-walled city of Tunhwang,* the highway forked. One road ran northwest across the Gobi (i.e., "Desert") to Hami (Qomul) and Turfan, and thence to Persia (Iran). A southern fork dared the forbidding Lop Nor desert and the waterless march to Khotan, then scaled the mountain passes into India.

So it was at Tunhwang that the great trade caravans paused for a last chance to refresh men and camels and lay in a last supply of food and water.

The caravan roads were primarily avenues of trade, but wherever men traveled, they learned new things. Travelers who made their way back along the grueling route brought news of other lands, other customs—and other religions. It was not strange then, that new beliefs first found a foothold in the desert sands. Buddhism, Manichaeanism, and later Nestorian Christianity and Mohammedanism were to flow east along those same tracks that carried the produce of China to the outer world.

500 Sacred Shrines to Buddha

Four hundred years after the birth of Christ, the young and vigorous religion of Buddhism had become the dominant faith among the merchants who passed through Tunhwang. It was natural, then, that these devout men should pause to worship. Ahead lay a dangerous journey. They might be waylaid by bandits, perish of thirst in the desert, or lose their lives climbing towering mountain passes.

A dozen miles outside the city walls of Tunhwang, in a narrow gorge between the Mingsha and Sanchi mountains, Buddhist monks established a temple in a great cave, hollowed out of the rock cliff which walled the river. For more than a mile hundreds of similar caves honeycombed the cliff.

The 200-foot wall was dotted with chambers of varying sizes, sometimes as many as four set one above the other. In the central chamber the monks burned incense, beat their great brass gongs, and chanted ancient hymns. Here the merchants, travelers, and soldiers came to pray for safety and success and to make sacrifices and donations.

In the middle of the fourth century an unknown merchant commissioned an artist to decorate one of the smaller caves as a chapel dedicated to his expedition and paid temple priests to worship in it.

The idea caught on. For more than 1,000 years the practice continued. Gradually some 500 caves were filled with paintings, frescoes and stucco images of Buddha and his disciples. Eight dynasties rose and fell while the Caves of the Thousand Buddhas were developed. As their fame spread across the desert sands, reverent Buddhists made annual pilgrimages to the remote temple. In a single month 50,000 trekked across the desert sands to worship there.

The last 50 years have seen the caves stripped of manuscripts and hangings by Western explorers, their statues and carvings plundered by Chinese looters. They were used as dwelling places by White Russian refugees who blackened the mud walls with their cooking fires.

Few foreigners have visited Tunhwang. Western traders who reached China in the 19th century came by sea. Tunhwang, with its extraordinary cache of priceless art, was 1,500 miles inland; it offered no attraction.

Today the only highway [illegible] from Lanchow to Urumchi runs [illegible] miles northeast of the sleepy little town. Only a narrow cart track links it with the outside world. Tunhwang lost its importance hundreds of years ago. A scant 20,000 people remain, eking out a meager existence as farmers and trading with nomadic Mongol and Kazak herdsmen who live in the surrounding desert.

A Little-known Wonder of the World

Yet, in the middle of this wasteland, stand the famous Caves of the Thousand Buddhas, many still intact. They represent a remarkable repository of Oriental religious art, one of the little-known wonders of the world.

* To locate important places mentioned in this article see the National Geographic Society's New Map of Asia and Adjacent Areas published as a supplement with this issue of the National Geographic Magazine.

Frank Shor and a Tungan Friend Row a 30-foot Boat Across Sinkiang's Heavenly Lake

[illegible]

[illegible] we had visited every part of the country except the [illegible] northwest. Now we were planning to return to the United States, and the military situation made it clear that a return to Sinkiang before travel in the interior would [illegible] possible. This would probably be our last chance.

[illegible] Sinkiang, now in Communist hands, and its capital city of Urumchi, [illegible] romantic cities of Turfan and Hami. We decided to fly out [illegible] and return overland [illegible] see the ancient [illegible]

[illegible] permission to visit Sinkiang and [illegible] officials [illegible] Ministry of Information [illegible] its [illegible] problems. We thanked [illegible] for their trouble. But [illegible] time we had made [illegible] Shanghai in a [illegible] we weren't ready to [illegible]

A Perilous Flight

[illegible] officers [illegible] to get [illegible] made a dark landing [illegible] [illegible]

Baby Poses His Head Out of Papa's Vest Just in Time for His Flashlight Picture

[illegible] This Korean chief assembled his [illegible]

Our reception at Urumchi, however, more than made up for the flight. Maj. Robert Ekvall, U. S. Military Attache, met us at the field and drove us to the American consulate, where we were the guests of consul J. Hall Paxton and his wife. We told them of our plans to return overland.

City in Another World

They thought it might [illegible] us that it would [illegible] themselves lived. They added that, to their knowledge, no foreign woman had made quite the same trip and journey which we had in mind. That, of course, was all Jean needed. She had been a little worried, but now nothing could dissuade her. By the time we went to bed, the unpleasant trip far behind us had been forgotten in our plans for the one coming up.

We awoke in a new world. [illegible] was the fetid air of Shanghai, the [illegible] and [illegible] and busts of [illegible] people. The consular [illegible] were [illegible] with flowers, [illegible] and [illegible] dollars [illegible] flowers.

After breakfast we [illegible] the [illegible] morning. [illegible] snow-capped peak of Bogda Ula [illegible] mountain, thrust [illegible] Along the [illegible] behind [illegible] and

Will Crumbles. How Long Will This Stucco Saint Stand?

This 12-foot figure is one of the hundreds housed in China's Caves of the Thousand Buddhas, one of the little-known wonders of the [illegible] 1,100 years old. A wooden framework formed the skeleton; bundles of reeds made up arms and legs. Then clay was applied and when dry, [illegible]

flowers dotted courtyards surrounding rambling adobe houses. Gourd vines climbed over patios, and strings of bright red peppers hung from roof poles.

Naked children played in the street dust. Tungan women in their dresses gay banners [illegible] street, walked slowly [illegible]. Overhead great [illegible] wheeled in the [illegible] note coming from tiny wind whistles attached to their legs. A [illegible] Turki gentleman rode [illegible] by, seated directly over the hind legs of his tiny donkey. Behind us sounded the [illegible] note of a bronze bell, and we stepped aside to let a train of huge two-humped camels amble by.

We walked to the main street. There are few automobiles in this city of a quarter-million people. Residents travel afoot or by animal. Public buckboards replace taxis. A buckboard driver follows a prescribed route, and you simply trot alongside to bargain with him, then leap aboard.

To visitors, it appears Urumchi's biggest trade is in food. Vendors of grapes, Turfan raisins, vegetables, and peanuts line the streets. Melons are everywhere, all sizes and colors. Great piles of them appear every few yards. There are tiny hard-shelled ones, resembling acorn squash, others like [illegible] melons, and dozens of other varieties. [illegible] and [illegible]. Ten cents buys the largest of the lot. For two cents you can [illegible] enough for two people.

Nearly every block along the main street has its shish kebab stand. Glowing coals fill six-foot metal troughs. Sit on a low stool in front of one, and the eager vendor will seize a handful of long metal skewers and thread each with six or eight good-sized pieces of mutton. Sizzling over the coals, they are

seasoned with salt and red pepper. You eat your fill but save the used skewers. The cook figures your bill by counting them. Cost: one cent each.

We planned on returning to the consulate for lunch, but instead we feasted on shaslik and Turki bread, then bought a ripe melon. We wandered down to a clear millstream, where we sat and enjoyed our dessert.

Across the stream was a large walled compound. Women were washing clothes in the stream, and curious children lined up to watch us eat. Tungan, Turki, Chinese, and White Russian families all lived in the same compound in harmony (pages 392, 393).

Cans Frame a Strange Picture

In the afternoon we rode a buckboard to the walled business section, where there are cobble-stoned streets and a few modern buildings. The shops were full of canned goods, principally U. S. Army surplus items, at fantastic prices. A five-pound can of powdered milk sold for $30, and a small can of army stew brought $4.50.

We stood inside a shop and looked through windows piled high with American canned goods at the street. Two Kazak herdsmen, clad in great sheepskin coats and wearing bright-red peaked hats topped with owl feathers, sat in silver-mounted saddles astride fine-looking ponies. They were driving a herd of fat-tailed sheep. That picture, framed in a window full of canned meat and cocoa, made us rub our eyes and wonder if we weren't dreaming.

Hal Paxton gave us a brief lesson in Sinkiang geography and history the next day. "It's the Largest Province in China," he said, "and the most sparsely settled. About 3,500,000 people live in an area of more than 600,000 square miles. That's more than twice the size of Texas. Yet there isn't much room for immigration.*

"Actually, less than five percent of the land is usable. The rest is desert or so mountainous it can't be used even for sheep raising.

"Chinese form a very small proportion of the population. There are only about 200,000 in the Province, and two-thirds of them live in Urumchi.

"Nearly three million of the population are Uigurs, a Turkic people who originally came from Mongolia and embraced the Moslem religion. Then there are about 300,000 Kazaks, a nomadic people, related to the Uigurs in speech and religion. They are the most colorful people in the Province. They love horses and ride everywhere. I've even seen them ride right into a store in Urumchi.

"The rest of the population," Mr. Paxton continued, "includes Chinese and Turki stock, and handfuls of Mongols, White Russians, Manchus, Tajiks, and Taranchi. There have been numerous battles between the Chinese rulers and the other races, but at the moment everything is peaceful. I think you can travel through most of the Province in perfect safety."

"Amerikanski" Opens Many Doors

We took Mr. Paxton at his word and found it correct. During the next month we traveled both north and south of Urumchi by truck, horse, and camel. Never did we meet anything but hospitality.

We rode south into the Tien Shan (Heavenly Mountains) and to Tien Chih (Heavenly Lake) (page 384), on a hunting trip. We found a warm welcome in every felt-covered Kazak yurt. Invariably, at the word "Amerikanski" the door flap would be pulled back, we would be invited inside, and hot tea, wooden bowls of fresh milk, and heaps of roasted grain would be placed in front of us. Payment was impossible (page 385).

Nor was such friendliness found only in the countryside. Americans are rarely seen in Urumchi. We were followed almost everywhere by groups of youngsters and a few elders, all anxious to assist us. The most amusing thing to us was the community aspect of our bargaining.

In China proper, crowds watch in silent glee while a clever merchant cheats an unsuspecting foreigner. Not so in Urumchi.

When Jean or I found a saddlebag or a pair of soft leather boots we liked, we'd try to bargain in Chinese. But most merchants spoke only Turki dialect. When that happened, the onlookers would take over. Members of the crowd would examine the article, hold a brief consultation, and agree on a proper price. The merchants might protest, but it did them no good. The crowd decided on a fair price and wouldn't allow us to pay more.

We would gladly have stayed the winter in Urumchi, but we had already spent a month, and our trip across the desert would take at least as long. We arranged to leave the city on a government truck departing in a few days.

* See, in the NATIONAL GEOGRAPHIC MAGAZINE "With the Nomads of Central Asia," by Edward Murray, January, 1956; "From the Mediterranean to the Yellow Sea by Motor," November, 1942, and "Flies Over the Roof of the World by Motor," March, 1932, both by Maynard Owen Williams; "On the World's Highest Plateau," by Hellmut de Terra, March, 1931; "Desert Road to Turkestan," June, 1939, and "By Canoe and Caravan Across Central Asia," by William J. Morden, October, 1937.

Teaching Carved Temple and Caves from a Cliff

[illegible]

A Buddha and His Court Have Occupied This Cave 1,200 Years

[illegible]

On the morning of September 29, Paxton drove us to the Highway Department compound. We located our chariot, a battered wartime Studebaker, and tossed our barracks bags aboard.

Foreigners Get Choice Seats

Invited to ride in the front seat, we managed to squeeze in, with our shoulder bags, trench [illegible] with a big sack of mail. We would have been more comfortable riding with the half-dozen Chinese passengers atop the mountain of oil drums, freight, and luggage in the rear. But our driver had instructions we were to have the choice front seats. No amount of persuasion would change his mind.

The driver mounted to the cab and turned the switch. His tiny mechanic turned the crank several times, then leaped high in the air like a ballet dancer and came down with all his weight on it. The motor coughed, the truck shook, the mechanic scrambled to the top of the cab, his feet dangling in front of the windshield, and we were off.

A half-mile out of town we halted beside a crowd of people and a mountain of luggage. The driver jumped out and began bargaining with the crowd. We were surprised for a moment, then recognized the old Chinese custom of the "yellow fish," passengers who pay the driver rather than the truck owner.

There were 14 new passengers, including one entire family traveling with all its possessions. While we watched in open-mouthed amazement, they loaded onto the already crowded truck a crate of chickens, another with four squealing pigs, and a great assortment of bundles and boxes.

When there was no more room on top, one man produced a rope and skillfully lashed half a dozen chairs and two pairs of huge elk (wapiti) antlers to the back of the truck. Then, from the ditch beside the road, he lifted a bamboo ladder, and the "yellow fish" mounted the truck. The mechanic went through his ballet performance once more, and we were on our way again.

The road from Urumchi to Turfan, our first overnight stop, is good. For two hours we rolled along at a brisk 25 miles an hour. Then the driver, Mr. Li, began to watch the ammeter [illegible] ing. The gauge registered a steady "charge," and I could see nothing wrong. But Mr. Li was obviously concerned.

Finally, with a sigh of resignation, he halted beside the road. Mr. Kao, the mechanic, took a tool kit from under the seat, and with considerable speed and efficiency they dismantled the generator. They wiped the parts, reassembled them, and cranked the truck. Mr. Li viewed the ammeter with a critical eye. It registered exactly as before, but this time he smiled with satisfaction. We resumed our journey.

Five times that day we repeated the performance. Three times it was the generator; twice the carburetor was taken apart. I was positive nothing was wrong, and the whole performance mystified me.

Then Jean pointed out the admiring attention the whole exhibition drew from the other passengers, how they smiled and nodded; and I understood. The boys were simply showing off their mechanical knowledge. Like an American cowboy who makes a gentle horse misbehave before a crowd to demonstrate his horsemanship, our new friends were making it look hard.

Mechanical Skill "Makes Face"

The performances of other drivers we met later confirmed our conclusion. Between Urumchi and Lanchow we kept careful score, and that 1,000-mile stretch of road saw generators disassembled 31 times, with carburetors a close second at 27. Each time the passengers watched with open admiration. Mechanical transportation has simply added another twist to the ancient Chinese custom of "making face" (pages 410, 412).

Despite frequent exhibitions of mechanical skill, we reached Turfan at dusk. It had taken us nine hours to cover 125 miles. We stopped at a roadside inn, where we had a tiny [illegible] ned, taking up half the floor space.

On the main street two Chinese children were selling stewed chicken for a nickel a piece. We were about to try some when a Chinese army officer took a pair of chopsticks and removed every piece from the pot, tasting each before replacing it. He then selected two pieces, paid the children, and left.

They offered us next choice, but somehow we had lost our appetite for chicken. We bought a loaf of Turki bread, a delicious melon, and a handful of white Turfan raisins and retired to our sleeping bags.

We started at dawn the next day. Our lunch was at a tiny desert village. A delightful old Chinese gentleman, traveling with his daughter, joined our table, as did a Chinese army captain who introduced himself as Captain Hwang.

We made good time in the afternoon, with only three stops to take apart the generator. We reached Chi Chuan (Seven-cornered Well) about 9, and stopped for the night. Here there were no small rooms such as we

Views from Sidal Rock: the Western Main Temple of the Caves of the 1,000 Buddhas

Drawing Water Makes a Cool, Shady Play Site for Children in Hot, Dusty Lumsada

[illegible]

Chinese, Tungusic and Tai-Ki Children Live and Play Like Brothers in an Adobe Compound in Urumchi

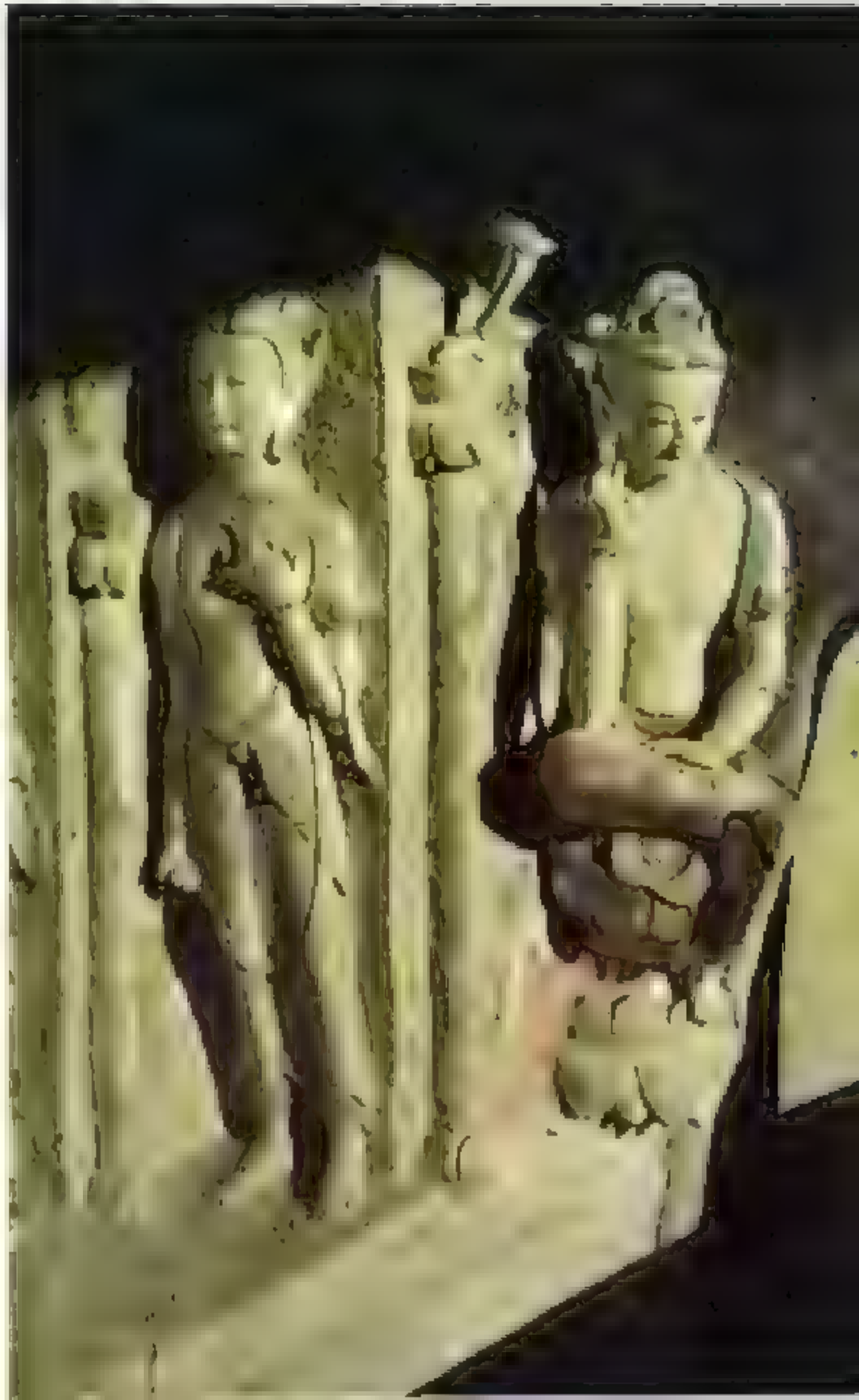
Few More than a Mile the 500 Caves of the 1,000 Buddhas Hungyeesan a Cliff near Tachwang

[illegible]

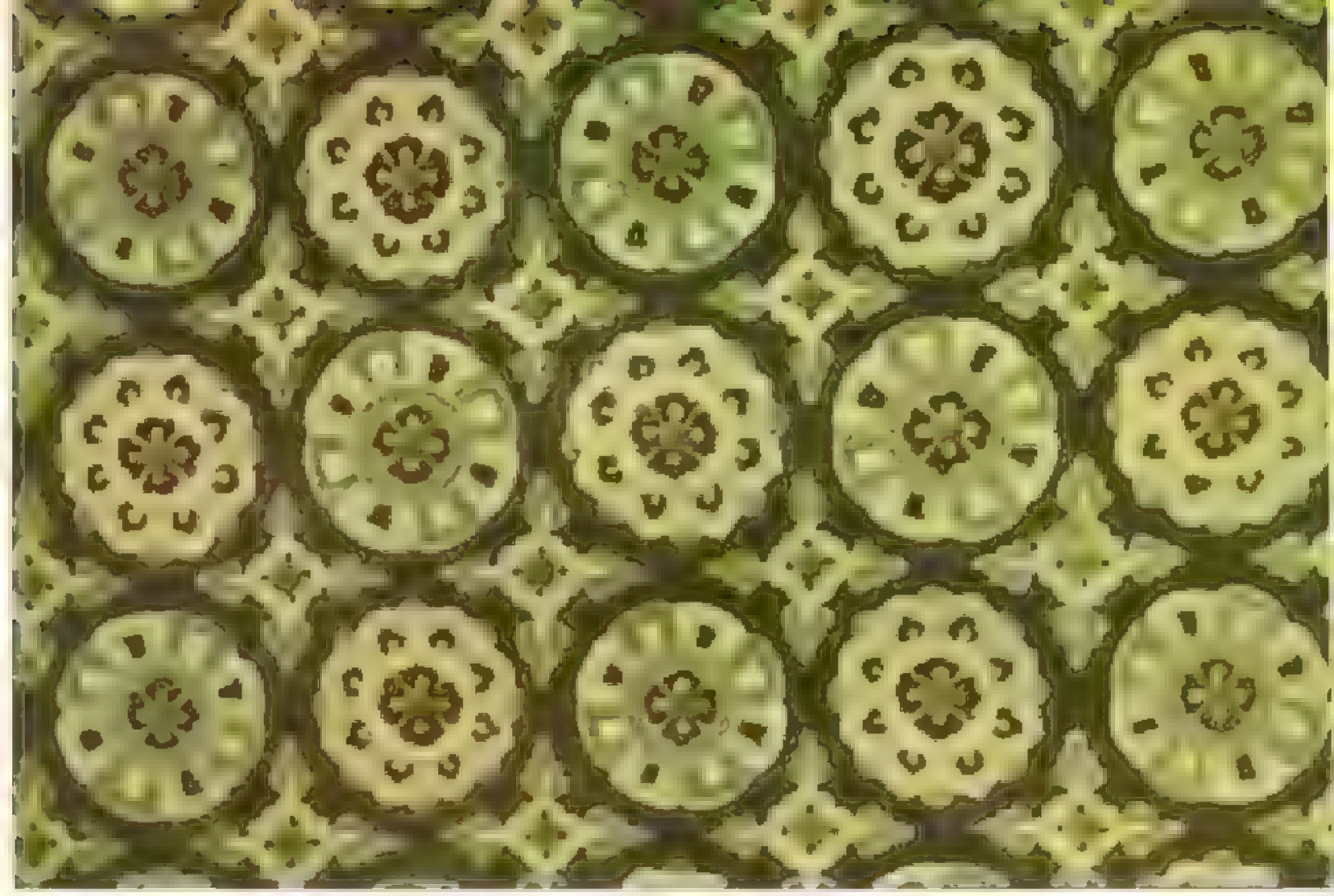
Chinese Statues Show a Strange Grecian Flavor

[illegible]

[illegible]



Fasting Buddhas in Lockwood De Forest's Transformation of Mills Cave into an Art Gallery



▲ A Lotus-petal Design 1,500 Years Old, Weaves a Wallpaper Pattern

▼ Ancient Priests Walked on Lotus Bas-reliefs on Cave Floors

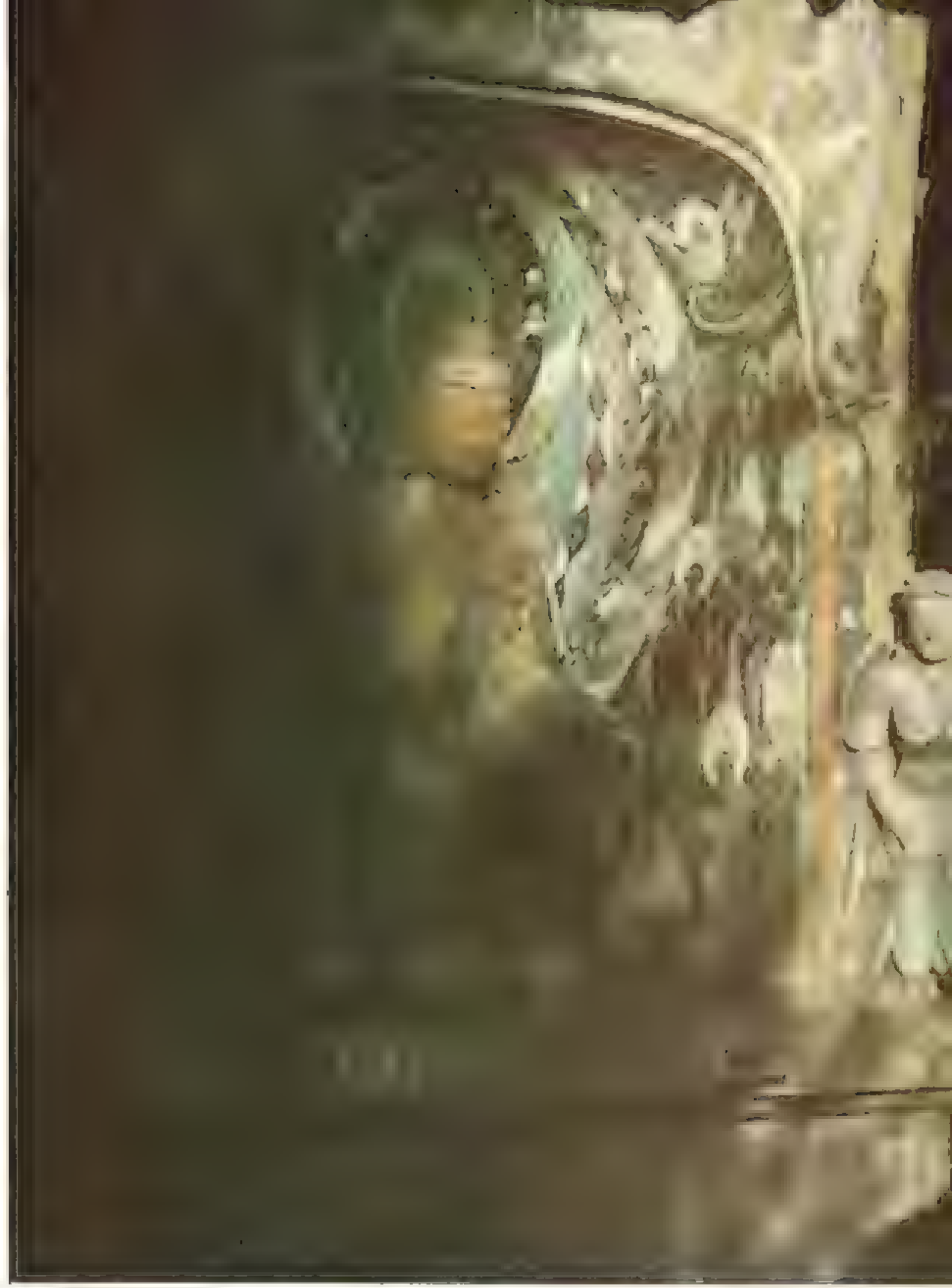
Buddha's Dark Cave Is Exposed to Light in a Collapsed Wall

[illegible]

A Hot Day in Tuolumne: Baby Wears a Thin Layer of Mud, but Pilgrim Mother Clings to Heavy Skirts

A A Dvarapala (Gatekeeper), Buddhist Guardian in Heaven, Stands in Armor

Jesus Shot Masses Friends with Bucks in the Cases' Temple Area



A Regal Buddha, His Cave Door Guarded Away, Remains in Sunlight and Shadow

Crescent Lake: a Garden Spot in the Sinkiang Desert, Sparkles at the Base of Golden Sand Dunes

[illegible]

A Coin's Lucky Toss Saved Tunhuang's Priceless Frescoes

A Chinese Farm Wife Dresses for a Shopping Trip to Xian

[illegible]

A Tonkinese Solves the Dinner Problem by Doing Without

[illegible]

Kitchener's Vegetable Market Oasis in the Kansas Desert

Grinning Father and Glum Son Followed the Pilgrim Road from Mongolia to See the Caves

had enjoyed the night before, but only two large halls, each with a kang some 25 feet long. Captain Hwang bedded down next to us and agreed to awaken us in the morning.

Chinese Sleep Talking—in English

At 4 o'clock I was awakened by a voice droning, in a low monotone, "Mis-ter Shaw-er, please get up ver-rey ear-ly. Mis-ter Shaw-er, please get up ver-rey ear-ly."

I was surprised, for none of our fellow passengers spoke English. I turned on my flashlight. There lay Captain Hwang, sound asleep, repeating the sentence, syllable by syllable. As I watched, he rolled over and was quiet.

When he awoke us at 6, I asked him, in Chinese, why he hadn't told us he spoke English. He explained he had studied it for two years but spoke so badly he was embarrassed to attempt it. When I told him of his nocturnal conversation, he wouldn't believe me.

The day was miserable. A cold wind swept across the rocky desert, and a driving rain sought out the cracks in the truck cab. Our fellow passengers on top snuggled beneath a canvas tarpaulin. Peculiarly enough, not once during that day did our crew find it necessary to dismantle the motor!

Toward evening the weather cleared, and when we reached the outskirts of Hami (page 409), the long rays of the sun turned the oasis into a fairyland. Suddenly the desert was gone, and we were among lush green fields and groves of trees.

We passed through the ruined walls of what was once the Moslem area of the city, where wrecked mud houses told a silent story of bitter battles in the revolt of 1937. Untouched among the desolation stood a magnificent mosque, its walls aglean with white- and blue-figured tiles and its green-tile dome glowing softly.

We paused outside the gate of the Chinese city to discharge our "yellow fish," then rolled on to the Highway Department repair shop. There Mr. Li informed us we would remain in Hami for two or three days.

We tossed our bags on a Hami taxi, a heavy wooden cart pulled by a tired little Mongol pony, and rode to an inn where we got a tiny private room graced with a small wooden table, two stools, and a smoking oil lamp hanging from the ceiling.

Captain Hwang insisted on taking us to dinner. We suggested an open air meal of shashlik and melons, but he was horrified at the idea of eating on the street. "Ver-rey dir-tey, ver-rey dir-tey," he said. Instead, he led us through narrow alleys to the dirtiest Chinese restaurant I have ever seen. There a half-dozen dishes were served in filthy bowls with food-encrusted chopsticks.

We managed to down a bite or two of some things, but couldn't quite negotiate the spiced beef. The proprietor kept this choice item hanging just outside the shop. To serve it, he simply brushed away the flies and sliced off a few tidbits. We thanked the captain for an excellent dinner and went to bed hungry.

Jean awoke the next morning with a firm determination to take a bath. After a pleasant breakfast of Chinese meat rolls and eggs cooked with green peppers, we set out to find a bathhouse. We asked a Chinese gentleman where we could find one, and while he told us, he also told everyone else within hearing. A crowd of some 50 people followed us to the establishment. They were friendly, but Jean found their concern a little embarrassing. As it turned out, they saved the day.

They crowded into the office of the little bathhouse with us, and listened patiently while I addressed the surprised proprietor. He was pleasant enough, but horrified. Women in China do not go to public bathhouses, he explained firmly. They bathe at home.

Courtesy Enforced at the Bathhouse

But the crowd had a different idea. A very old Chinese gentleman stepped out of the audience and spoke sharply to the proprietor. Here were two honored foreign guests, among the few Westerners who had ever been in Hami, asking a simple favor, and he, the bathhouse proprietor, was rudely turning them away. What kind of courtesy was that? What would the foreigners think of Hami?

A Turki gentleman wearing an enormous fur hat and a sheepskin coat took over at this point. He scowled first at the proprietor, then at the crowd. The audience hustled through the dust of the little entry room where we sat, and in a few minutes out came the regular customers of the establishment, some still buttoning their outer garments and all looking very confused.

The manager even got into the spirit of the thing. He started ordering his employees around in a loud voice. Within five minutes the bathing room was empty, double curtains had been stretched around one corner, a bench table, and pot of tea had been placed inside the curtained space. Jean was ushered into the room with great ceremony.

Then the crowd smiled at me and bowed. I bowed back, and they withdrew across the street. I went back into the bathing room and found another curtained corner prepared for me.

Young Friends, Neglecting Chopsticks, Gulp Noodles with the Power of Suction

In western China the natives, like the Chinese, took their meals at open-air stands. These found these boys noisily dueling over in Turfan.

In 15 minutes we were thoroughly scrubbed and [illegible] clean. The smiling manager refused any pay. I left a little pile of Chinese currency on a table. Outside we thanked the crowd as profusely as my Chinese would permit. They assured us we were most welcome, and wished us a pleasant stay.

Mr. Li and Mr. Kao came by late the next morning to inform us that the truck would leave at dawn. We got up at 4, lugged our bags to the Highway Department compound, and found no one there.

At high noon we departed, picked up a new load of "yellow fish" a mile out of town. Then the usual motor trouble started again. But this time the generator seemed to be really broken, for we stopped every few minutes.

Bedbugs in a Sandstorm

We made only 50 miles before nightfall and stopped at Lo To Chan (Camel Station), a tiny collection of huts. There we were shown to the only private room in the inn, obviously the owner's private bedchamber.

By midnight we were both awake and scratching, and a quick look with a flashlight revealed an army of bedbugs marching over our sleeping bags. We emptied out the [illegible] as best we could, filled them with insect powder and DDT, and carried them outside. We preferred to spend the rest of the night on the desert.

An hour later the wind rose, and our bags were soon covered with six inches of sand. Eventually we returned to the inn and slept on the sand floor of the kitchen. For three hours the wind howled, and streams of sand poured into the room from every crack. Around the wheels of our truck were a foot deep in sand and the back was half full of Gobi.

It took almost an hour to clean it out, but once on the road we made excellent time. Kao and Li had been up half the night with the

Squeaking Hide-wheelers Cart Watermelons to Hami's Market Place

Mules take the place of camels in Chinese desert travel. A truck passenger [illegible]

[illegible]

An Increase Feet in Time

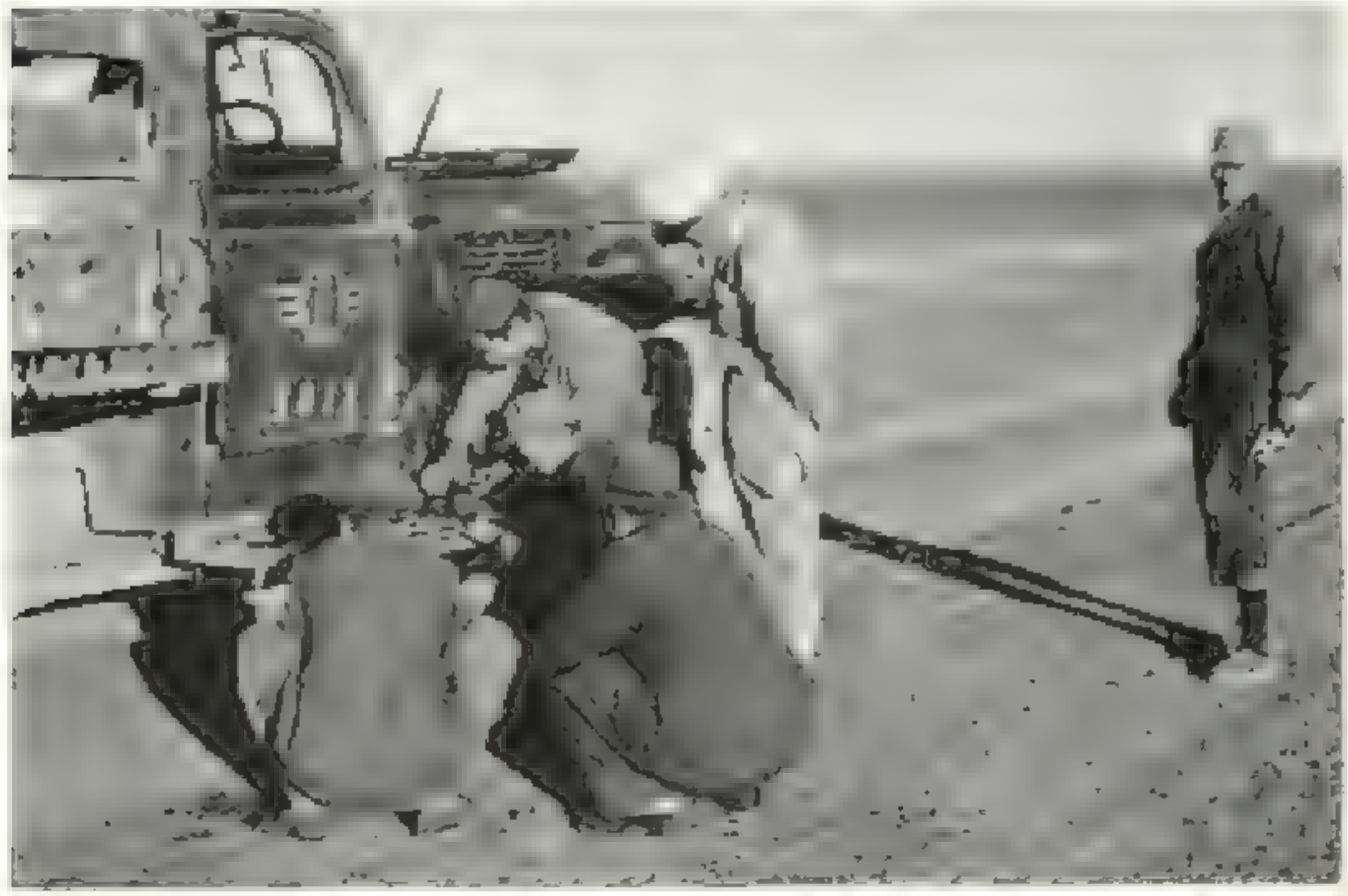
[illegible]

[illegible]

[illegible]

Frank Starr and Chinese Captain Swap Cigarettes atop Caravan Canvas in Hotel

Here Mrs. Starr [illegible] expecting a shower in the palace hal[illegible] were not allowed. The [illegible] connected him to China in A[illegible]



Driver and Mechanic "Make Lace" by Needless, Repairing a Generator

[illegible]

China. He had been [illegible] in Japan and [illegible] English. With my meager Chinese we got along beautifully.

Soldiers carried our bags to his own house, where his gracious wife furnished an [illegible] breakfast of noodles, Chinese bread, green vegetables, and beef [illegible] with green [illegible]. We would [illegible] insisted, be [illegible] guests in Tunhwang, and his cavalry regiment would furnish horses for our trip to the caves, 12 miles out of town.

We wanted to leave immediately, but he explained that a convoy would be necessary, since marauding Kozak bands had recently robbed Chinese travelers in the area. No soldiers were available that afternoon, he said, but he promised us an adequate escort in the morning.

About 5 o'clock we were seeing the sights of Tunhwang, when the colonel came rushing up to us. "You're lucky," he said. "There are men from the caves here. We'll get you a ride." He hailed a truck and introduced us to some young Chinese, including Mr. Hwan Li sen, an artist.

Eastern Housewife Meets Western Author at Ansi's Temple

Mrs. Li, wife of Ansi's highway director, "let me stumble in my vile Chinese [illegible] started speaking perfect English!"

They stopped at the colonel's house for our bags and drove us out of town and across the desert to the caves. Before us in the moonlight suddenly appeared a tall grove of poplars. We turned into a whitewashed compound and were shown to a two-room apartment, its walls lined with copies of cave paintings and reproductions of Buddha images.

We arose early the next morning and walked the 100 yards to the caves in time to see the great cliff in the first rays of the rising sun (page 385). Much of the cliff face is covered with fading murals. Ancient wooden balconies mark the entrances to many of the grottoes (page 394), and many tiny niches in the cliff contain small statues. The poplars between the cliff and the river cast a deep shadow over the lower portion of the cliff, softening the colors of the garish restorations of recent years.

Darkness and Dry Air Protect Caves

Fortunately, a lack of funds has hampered "restoration" work, which involves touching up the wonderfully muted and faded colors with vivid reds, greens, blues, and yellows; so most of the frescoes are still in their original state. In the dry desert air, preservation is excellent; the paintings inside the caves, protected from the rays of the sun, are still exquisitely colored. Those on the cliff face have been softened and blend beautifully with the [illegible].

This Battered War-surplus Truck Carried the Authors Across 500 Desert Miles

When an unmarked oil drum leaked over the side, the truck stopped, and [illegible]

The first thing which we saw was the Temple of the Great Buddha (pages 389, 391), [illegible] of the cliff. Outside, it resembles one face of a pagoda, with nine caves protruding from the cliff face. From the corners of the roof eaves little temple bells tinkle in the breeze.

We entered the temple beneath a magnificently carved archway, through a half hundred [illegible] Sung dynasty paintings of [illegible] found ourselves in the dim light of a [illegible] chamber. As our eyes became accustomed to the darkness, an enormous Buddha took shape in the dim cavern.

We stared in awe at the seated figure, nearly 180 feet high, shaped from the rock of the cliff itself. At his feet stood a row of [illegible] whose incense burned [illegible] figures of lesser divinities stood in [illegible] side of the great vault, and the walls themselves were covered with an [illegible] pattern of thousands of small Buddhas.

Dean, our artist friend, told us the giant Buddha was [illegible] sculpture. The caves real beauty [illegible] the smaller grottoes, [illegible] He volunteered to [illegible] for the day.

We walked to the southern [illegible] where 22 caves [illegible] the Northern Wei dynasty [illegible] Inside these caves [illegible] such as when [illegible] years ago [illegible] deep and rich. Black pressure [illegible] rates, and the dates, though primitive, are strong and free. Most impressive was the [illegible] guitar feeling of rhythm and movement which the ancient artists imparted to their work.

Around the tops of the Wei caves were graceful friezes representing [illegible] pagodas. Each was [illegible] with flowing garments [illegible] for the gentle breeze. On the walls beneath were small figures of Buddha [illegible] from his life on earth. [illegible] seemed to live and move.

The Wei caves, [illegible] alone as a representation of [illegible] period of Chinese Buddhist painting. [illegible]

Library of Congress Visitors Examine a Seventh-century Scroll Found in the Caves

Some 15,000 Tun-huang [illegible] in 1920. [illegible] British Museum. [illegible] was sealed, probably against robbers. [illegible]

[illegible] of first [illegible] today. A [illegible] Chinese [illegible] representing the typically Indian [illegible] of Buddhist art, particularly the figures [illegible] Buddhist [illegible] of the Renaissance period [illegible] of their [illegible] in 15th century [illegible], particularly the Holy Family [illegible].

Japanese Copied Tang Masterpieces

A [illegible] Mongol horseman [illegible] with [illegible]. He was [illegible] a long spear [illegible]. His [illegible] pleasant with [illegible]. Mr. Dean explained that the Mongols [illegible] their clothes in [illegible] layers. Some of them he said [illegible].

The [illegible] period represented in the Tun-huang paintings covers the [illegible] 581-618 [illegible] and Tang [illegible] 618-907 [illegible] Tun-huang [illegible] Chinese art still [illegible] Oriental culture. Except [illegible] in the caves only a few real examples [illegible] Japanese [illegible] Lotus [illegible] Buddhist [illegible] Tang [illegible] Tun-huang [illegible] Tang [illegible] prevailing [illegible].

The 5th and 7th Tang caves follow a certain [illegible] pattern. [illegible] Buddhistic [illegible] Buddhahood [illegible] and drapery they show strong evidence of the Greek influence which came from the Greco-Buddhist school of Gandhara, India.

On one side wall are three [illegible] pictures showing [illegible] Buddha [illegible] single figures of Bodhisattvas [illegible] 4031 [illegible] the Western Paradise

These latter scenes are of striking grace and beauty, representing the souls of the blessed reclining in elaborate pavilions around a lotus-covered lake. Celestial beings sing and dance for them, and a soft rain of blossoms perfumes the air.

Jean was particularly fascinated by the ceiling and border designs (page 397, top). Some were simple geometric patterns, others a symmetrical arrangement of lotus flower designs. All were done with a wealth of color and balance of design which made them singularly attractive.

Most interesting to us were the remarkable panels which tell religious stories in a series of pictures. These distinguished ancestors of our modern comic strips are done in magnificent colors and in many cases in a style almost alarmingly modern.

Walt Disney Animals Charm

Particularly fascinating are the animals represented in these animated panels. Graceful fawns and antelope spring through the air, identical in pose and expression with Disney figures. Little rabbits and foxes watch the action with open-eyed astonishment; they look like illustrations for a modern children's book.

One Tang cave contains a series of panels, 36 inches high, representing the introduction of Buddhism from India into China. As your eye follows the course of the paintings around the caves, it is almost impossible to escape the feeling that you are seeing a motion picture.

The great attributes of the Tang paintings, Dwan believed, are the vigor of their strokes, the wealth of color, and the strength of movement. From the technical point of view this is no doubt true, but to us their beauty will always be in their realism and in their almost unbelievable presentation of living beings.

There are more than 500 caves in the temple area, and it was impossible for us to visit them all in three days. But Dwan and the other staff members took us to representative caves from each period in order that we might get a balanced picture.

There is an unusual sense of continuity in the cave paintings. The primitive strength of the Wei school blends smoothly into the more finished product of the Sui and Tang periods, with virility and the feeling of youth still a strong factor.

Then gradually, through the caves of the Five Dynasties (A. D. 907-959) and into the Sung dynasty (960-1279) (page 398) there is evident first a leveling off, then a period of seeming stagnation, and ultimately, in the few grottoes attributed to the Yuan, or Mongol (1279-1368) period, a strong hint of decay. The obvious love for the characters portrayed in the Sui and Tang eras is no longer present. There is a sameness about the 100 caves of the Sung period which clearly indicates disinterest and a lack of imagination.

One of the most striking examples of this loss of vigor can be seen in caves where original Tang frescoes have been plastered over and covered by Sung and Yuan paintings. In some spots the newer layer has fallen away, leaving half a wall of Tang and an equal area of Sung decoration. The later period suffers greatly by comparison.

After the fall of the Yuan dynasty the caves fell into disuse for nearly 300 years. Then, in the Ching (Manchu) period (1644-1912), a few new grottoes were decorated. The temple continued to be a center of Buddhist worship, but the caravan routes had shifted. No longer were there wealthy traders to act as patrons to artists and priests.

Though half the caves are approximately the same size, others range from the vaulted cavern of the Great Buddha to tiny closetlike grottoes containing a single figure and a few feet of painted wall. Many of the caves are joined by tunnels or a series of balconies. Thus it is possible to travel the entire length of each level without descending to the ground.

We spent two full days and most of a third at the caves. We would gladly have spent another week, but Colonel Chin had told us of a truck which was to leave Tunhwang Sunday morning. Reluctantly we left the caves and started back to the modern world.

But in Tunhwang we found that the truck was "broken down." We set out shortly before noon the next day, accompanied by six other regular passengers and 24 "yellow fish." The load was too great for the tires of the ancient vehicle, and we repaired a total of 18 flats in 70 miles. We were on the road 24 hours, and it was the low point of our whole trip. But there was an amusing incident that made it worth while.

At dusk we stopped to patch a tire at a tiny place known as Tien Shui Chuan (Fresh Water Spring). In the days of the great caravans it was an overnight stopping place. Now it had fallen into disuse. A very old Chinese farmer and his wife were the sole inhabitants. Some of the passengers asked them for food.

The old couple protested that they had no food other than their own meager supper. Most of the travelers accepted the situation but one well-dressed, sly young man drew the old farmer aside.

"Old one," I heard him say, "you are a fool. I have money, and you need it. You

can have your own supper and still profit. While your wife talks with these strangers, you take her supper and bring it here to me. In the dark no one will see. I will pay you well."

The old farmer protested, but as the stranger kept increasing the price, he finally agreed. "But you must wait a few minutes," he told the purchaser. "This must be done with caution."

Shocked by [illegible] terms, I [illegible] to the kitchen, wondering whether I should warn his wife. I didn't need to worry. She sat at the table with another of our travelers, both crushing large bowls of noodles and gruel.

"Hurry," she said to him. "Finish the bowl and leave. If my husband finds I have sold his supper, he will surely beat me. I too shall leave and then return and cry that someone has stolen our meal!"

When we finally reached Ansi we rested for a day and then bought tickets on a postal truck. These vehicles are the aristocracy of the road in western China, and we were pleasantly surprised that they ran on schedule.

We rode the long length of Kansu Province on a succession of them, through the "Jade Gate" at Yumen, through Kuochow and Kanchow (Changyeh), Shantan, and Wuwei. We sat high in the rear of the trucks sharing our space and our food with peasants and farmers, soldiers and businessmen, young and old. We slept at night on mud kangs and ate noodles and chicken in friendly inns.

Suddenly we were rolling along a smooth highway beside the turbulent Yellow River, passing the giant water wheels which turn 100 feet into the air. Through a thick wall and a great gate: we were in Lanchow.

From here we could get a plane back to Shanghai, back to motorcars and running water and hurrying crowds. Behind us lay five weeks of travel over 1,000 miles of the Gobi,* the cold of early mornings, the Caves of the Thousand Buddhas, and the dusty solitude of the Great Silk Road.

An hour later, fresh from a tub bath, we sat in the lobby of the Northwest House, Lanchow's leading hotel. Jean picked a copy of the NATIONAL GEOGRAPHIC MAGAZINE from a pile lying on a table. She opened it and found an article about a canoe trip down the Potomac. Her eyes lighted up.

"Just think," she said, "in a month we'll be back home, and maybe we can [illegible] interesting trips like this one!"

The Youthful Dalai Lama Smiles from His Throne in Lhasa

To millions of Buddhists in the Tibetan highlands as holy as the Buddhas painted in the Tunhuang caves [illegible] They regard him as a living divinity, the incarnation [illegible] the predecessor. Within Tibet he holds absolute spiritual power. [illegible] recent Chinese Communists have threatened to install a puppet in his palace. This photograph [illegible] the Dalai Lama in more [illegible] of Thomas [illegible] *Lost Land of Tibet*, in which he [illegible] journey across the [illegible]

* See "Expeditions to the Gobi Desert," by Roy [illegible], NATIONAL GEOGRAPHIC MAGAZINE, June, 19[illegible]

New National Geographic Map Shows Changes in Asia and Europe

SINCE World War II, Russia has expanded its borders by 264,400 square miles and commanded nine neighboring countries. In this period, Western nations have granted freedom to 13 Asiatic lands containing one-fourth of the human race.

Recording the tremendous transformation, the National Geographic Society's new map of Asia and Adjacent Areas presents up-to-date geographical background for the problems facing the world in Eurasia.

"Adjacent Areas" include Europe, a peninsula of Mother Asia. The mapped area contains 30 percent of the land surface of the globe and is home to 80 percent of the earth's people.

From the British Isles to Bering Sea and from the Arctic to Australia the changing Old World is spread before The Society's members in the light of the latest data. All members receive the 10-color map as a timely supplement to their March, 1951, NATIONAL GEOGRAPHIC MAGAZINE. More than 2,000,000 copies have rolled from big lithographic presses to meet the needs of the membership and agencies of the Government and United Nations.*

The 37-by 29-inch sheet bears 7,646 place names, many of them new as a result of portentous postwar changes.

Russia Swallows Equivalent of 11 States

Soviet Russia, stretching from Bering to Baltic, looks larger than ever after swallowing the spoils of World War II: 81,900 square miles in Asia and 182,500 square miles of European territory. These gains by the world's largest country are more than equal to all of New England, New York, Pennsylvania, Maryland, Virginia, and North Carolina.†

The Union of Soviet Socialist Republics, "Russia" for short to most Americans, is now 2.87 times the size of the continental United States and holds an estimated 53,000,000 more people than our own 152,300,000.

Moscow has extended its sway far beyond even these greatly expanded borders by turning neighbor nations into Communist satellites—Poland, Czechoslovakia, Hungary, Romania, Bulgaria, Albania, Mongolian Republic, and then immensely populous China. Communist Yugoslavia's refusal to be a Russian puppet was heavily outweighed by the communizing of China, whose swarming population totals 452,548,000, almost three times the number of people in the United States.

Aggressive communism, backed by the grim threat of Russia's undemobilized armies, has caused turmoil in Korea, Indochina, even the Shangri-la land of Tibet, and compelled the United States, Great Britain, and other democracies of the West to begin rebuilding the forces they so quickly disbanded after World War II. Tragic events in Korea, once remote have reached into every American home.

Ramparts We Watch

At the outer edges of the map rise the bastions of the West. With their easternmost defenses in divided Germany and their small but growing forces united under General of the Army Dwight D. Eisenhower, ten nations Western Europe stand together and with the United States and Canada, linked by the North Atlantic Treaty and a common heritage of free institutions. On the other flank are United Nations forces seeking to prevent the spread of Communist conquest in Asia. Occupied Japan, Okinawa, Formosa, and the Philippines form a chain protecting the Pacific.

Once-strong Japan is prostrate militarily. Its 82,000,000 people are dependent upon the West for protection, at least until a peace treaty can be written. Its present constitution renounces war and preparation for war.

Russians now are close to the Japanese islands, in the Kuriles and southern Sakhalin Island, which Stalin won by agreement at Yalta as part of his price for the eleventh-hour Soviet attack on mainland troops of tottering Japan.

Three hundred and twenty miles south of Japan, Okinawa serves the United States as an unsinkable aircraft carrier.

Within fighter range to the southwest lies the unhappy island of Formosa, Taiwan, as the Chinese call it. It forms the refuge of the Nationalist leader Chiang Kai-shek and his armies driven from the mainland.

In Communist hands the fertile island of palms, paddies, and misty mountains could form a wedge between American bases in Okinawa and the Philippines and threaten

* Members may obtain additional copies of the new map of Asia and Adjacent Areas (and of all standard maps published by The Society) by writing to the National Geographic Society, Washington 6, D. C. Prices, in United States and Possessions, 50c each on paper, $1 on linen (inks 25c). Outside United States and Possessions, 75c on paper; $1.25 on linen; inks, 50c. All remittances payable in U. S. funds. Postage prepaid.

† See "The Society's New Map of Europe and the Near East," by Alice D. Lancaster, NATIONAL GEOGRAPHIC MAGAZINE, June, 1949.

that now independent island republic. Americans and Filipinos remember that Formosa formed the springboard for World War II invasion of the Islands by Japan.*

Half-billion Asiatics Given Independence by Western Powers

Asia is now a continent governed almost entirely by Asiatics or by European-Asiatic Russia. In contrast to Russia's extension of power, the United Kingdom, Netherlands, United States, and France have given independence to the resurgent peoples of Asia over an area almost equal to the continental United States. Thirteen States, with a combined population of more than half a billion people, now control their own welfare and destiny, under their own constitutions, in territories formerly controlled by Western nations.

Six of these States have emerged from territory that belonged to Great Britain or was under British mandate—India, Pakistan, Ceylon, Burma, Israel, and Jordan. The first three have elected to remain members of the British Commonwealth, but because they are close to one another they are given distinctive coloring on the map.

Once a territory of the United States, the independent Republic of the Philippines was born July 4, 1946, with full American support and approval.

Syria and Lebanon, once under French mandate, became independent and sovereign countries in April, 1946, with complete withdrawal of foreign troops.

The 14-month-old Republic of Indonesia, a full-fledged State, comprises all the territory of the former Netherlands Indies except western New Guinea and near-by islands.

The word "French" has been dropped from the name of Indochina, which has been reorganized within the French Union into an association of the three independent States of Viet Nam, Laos and Cambodia. French administrators are being replaced by local talent. The States have been recognized by the United States and other governments and bring to 13 the number given independence by Western countries.

On the southern end of the Malay Peninsula, the single designation Malaya replaces the names of the old Straits Settlements, formerly a British crown colony, and the Malay States. A British high commissioner in Kuala Lumpur, the capital, supervises administration of the three-year-old Federation of Malaya, the great world port of Singapore (once a part of the Straits Settlements but now a separate British colony), and North Borneo, Sarawak, and Brunei.

Revolt in Indochina ties down numbers of French troops. The French have been hard-pressed by strong Communist forces trained and supplied in neighboring China.

In southern China the French Tricolor was hauled down in August, 1945, from strategic Fort Bayard, north of Hainan Island, when France voluntarily returned Kwangchowan to China, then under Chiang Kai-shek. France has controlled this fragment of China since 1898 under a 99-year lease. Chinese Spying replaces Fort Bayard.

Chandernagore, a former French possession about 25 miles north of Calcutta, was restored by plebiscite to India in May, 1950, after 262 years of French rule. Despite Indian pressure, France and Portugal have maintained their other possessions shown on the east and west coasts of the Indian peninsula.

Palestine is gone from the map. The former British mandated area was divided among the new nation of Israel and its neighbors, Egypt and Jordan. The partition is shown according to the armistice lines of January, 1950, which are subject to further negotiation. The Holy City of Jerusalem has been split. The walled city is in Jordan's hands; the western suburbs are now the capital of Israel.

Cease-fire Line in Coveted Kashmir

With India and Pakistan both claiming the State of Jammu and Kashmir, that lofty, cool Himalayan prize is shown on the map as a no man's land, with a cease-fire line established by a United Nations commission.

Flanked by Nepal and Bhutan in the buffer zone between India and Tibet, the autonomous State of Sikkim has been recognized by India. Formerly part of India, it looks to her for defense, diplomacy, and communications. Strategically important, the tiny State holds India's main trade route to Tibet, now invaded by Chinese Communists.

What used to be called Outer Mongolia is now a Russian satellite, the Mongolian People's Republic. China relinquished its claim in 1945.

Missing from the map is the former nominally independent State of Tanna Tuva, northwest of the Mongolian People's Republic. During its short checkered career it was claimed and occupied by both China and Russia. In October, 1944, the little-known State was formally incorporated, Russian style, into the Soviet Union.

In China the map shows names of prov-

* For recent articles on Japan, Formosa, Korea and other key spots in Asia, see "National Geographic Magazine Cumulative Index, 1899-1950."

inces, but their boundaries are omitted because of the constant changes being made by the Communist Government.

Among the many place-name changes are sweeping revisions of the names in Korea, Manchuria, and Formosa, formerly ruled by Japan. Japanese forms have been changed to the native spellings. In the new nation of Indonesia, native names replace the long-familiar designations left by the Dutch.

On our new map Chosen becomes Korea; Taiwan is Formosa; Fusan is now Pusan; Heijo is Pyongyang, capital of North Korea. Batavia and Bangkok are Djakarta and Krung Thep, and Levant States are Syria and Lebanon.

Joseph Stalin's name peppers the map of Russia, with ten places named for the Soviet Dictator. Satellite Bulgaria has added its battery by changing the name of the Black Sea port of Varna to Stalin, a far cry from its ancient Greek name, Odessus, which honored Homer's roving hero.

Iron Curtain secrecy, prevailing over three-fourths of Asia, hides even nonmilitary details. [illegible] must depend upon limited information.

One of Russia's most important construction projects is known to be the second trans-Siberian railway, the South Siberian Magistral (trunk line), planned to run from the Volga at Kuibyshev to the Pacific at the new port of Sovetskaya Gavan.

Dotted and solid lines show planned and completed sections of this long rail route across Siberia, calculated to end Russian dependence upon one vital railroad to reinforce and supply its troops in the Far East. One section, completed during World War II, connects the great new steelworks of Magnitogorsk, in the Urals, with Akmolinsk and the Karaganda coal fields.

In China long-disrupted rail services are being re-established under the Communist regime. The Peiping-Hankow Railroad, for example, has been reopened after 13 years. Now it is possible to travel by train from Canton or Hong Kong to Moscow—in about two weeks.

Europe Gets Oil from Asia

Red lines show roads, still the only means of land travel in wild interior parts of Asia. Some, such as the old silk routes of China have histories that reach back into the vague dawn of human history.

Information packed into the map ranges from ancient ruins to airports and oil fields, from the Great Wall of China to such modern engineering achievements as the 1,068-mile-long Tapline across Arabia. This American-built pipe line has started delivering 315,000 barrels of oil a day at a brand new terminal in the old Biblical city of Sidon.

In Netherlands New Guinea the map shows the new Klamono oil field, with a short pipe line to Sorong—first important industrial development in that remote part of the world.

Much of the Old World's oil comes from Iran and Iraq, close to the Soviet Union. Iran produces 681,000 barrels a day and Iraq 126,700. If this output was captured by the Communists, it would more than double the Soviet supply and would deny Western Europe its main source of precious oil. About two-thirds of the million barrels daily used by the Marshall Plan countries come from the Near East, the other third from South America.

In all, the Western Hemisphere yields 8,000,000 barrels of oil a day, against 2,900,000 for the Eastern Hemisphere. The United States alone each day produces 6,000,000 barrels, more than eight times the Soviet production.

Largest Continent Mapped on Special Projection

In many ways, however, Asia is the continent of superlatives. By far the largest and most populous, it contains the world's highest mountain, 29,002-foot Mount Everest; the greatest known ocean depth, the new 34,440-foot Cape Johnson Deep, off Mindanao, in the [illegible] determination; the Dead Sea, lowest sheet of [illegible]

To map this immense Old World area, The Society's cartographers have used a projection never before employed, to their knowledge, for mapping Asia. Called the Two Point Equidistant Projection, it shows the continent's long and important shore-line areas with maximum accuracy and minimizes the distortion and scale variation that must occur when such a large part of the round earth is shown on a flat sheet.

A top-of-the-world inset shows how close are Asia and North America. By the scale, true distances can be measured to the Russian industrial center of Sverdlovsk.

Asia and Adjacent Areas is fifth in the National Geographic Society's postwar series of continent maps. It follows Australia March, 1948; Europe and the Near East June, 1949; Africa and the Arabian Peninsula, March, 1950; and South America, October, 1950. This continent series will be continued with a new map of North America, planned for the near future.

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[illegible] by publishing the purposes for which it was founded [illegible] years ago, the National Geographic Society [illegible] publishes the Magazine monthly. All [illegible] received in The Magazine [illegible] to promote geographic knowledge.

Articles and photographs are desired [illegible] The Magazine uses generous [illegible] is made.

In addition to the editorial and photographic activities [illegible] considerable money is made. The Society has sponsored [illegible] years of hard work to achieve their objectives.

The Society's notable expeditions have pushed back the frontiers [illegible] the Southwestern United States [illegible] a series of [illegible] prepared the Atlas [illegible] by data [illegible] concentrated distribution [illegible] report. The Society's [illegible] scientific [illegible] for a time hundred years.

In Mexico, The Society and the [illegible] [illegible] [illegible] America, and [illegible] a great center of [illegible]

On November [illegible] by the National [illegible] [illegible] a geological [illegible] maps, and [illegible] aided results of [illegible]

A notable undertaking in the history of astronomy was inaugurated in 1936 by The Society in cooperation with the [illegible] of the California Institute of [illegible] This project will require four years to photograph the entire [illegible] of heaven and will provide [illegible] and also atlas for astronomers all over the world.

In 1936 The Society sent out seven expeditions to study the eclipse of the sun [illegible] Burma to the [illegible] Island [illegible] to observe [illegible] of North America and Asia.

The Society granted $[illegible] in addition $[illegible] [illegible] by units and members in [illegible]

One of the world's largest [illegible] and glacial [illegible] [illegible] in Alaska and [illegible] Mountains [illegible] for The Society and the Harvard [illegible] on Exploration [illegible]

You've always wanted a South Sea Adventure

...why not NOW?

Hawaii

OAHU

MAUI. HAWAII. KAUAI.

It will delight you each month in the year!

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A non-profit organization maintained for your service by

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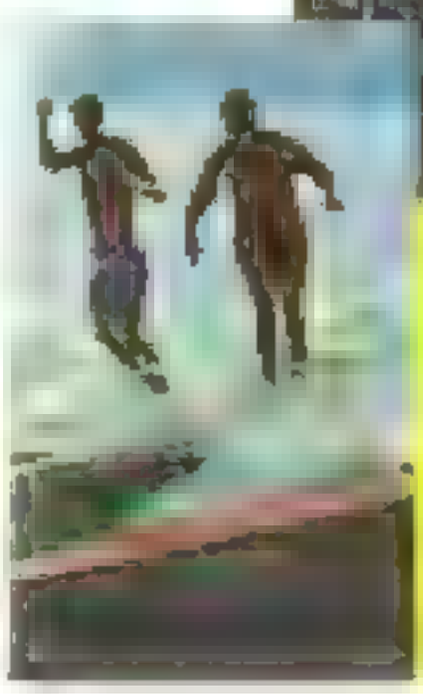

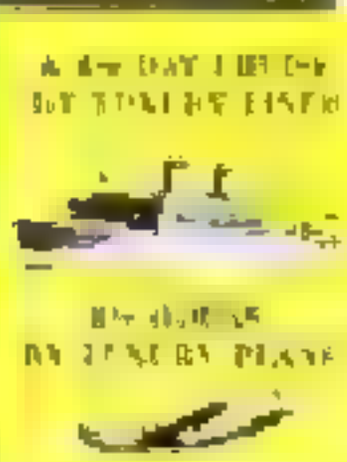

SINCLAIR'S *"City of Stockholders" is Bigger than Topeka, Kansas*

Sinclair's "City of Stockholders" has an even larger population than Topeka, the Capital of Kansas—which will give you an idea of the broad ownership of this corporation.

Sinclair has 100,513 stockholders — people of wealth and moderate means, [illegible] wives, men and women who have retired. The list of shareholders includes many [illegible] institutions — colleges, hospitals, [illegible] as well as insurance companies, investment trusts and trust funds. No one person, fund or organized group owns more than 1% of the stock. In fact the average holding is 132 shares.

This widespread ownership of Sinclair by people and institutions all over the United States, imposes a responsibility which Sinclair management endeavors to fulfill by policies that are both prudent and progressive—as they must be to meet the competition of other leading companies in America's oil industry.

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Now SOUTHERN CALIFORNIA is more fun than ever!

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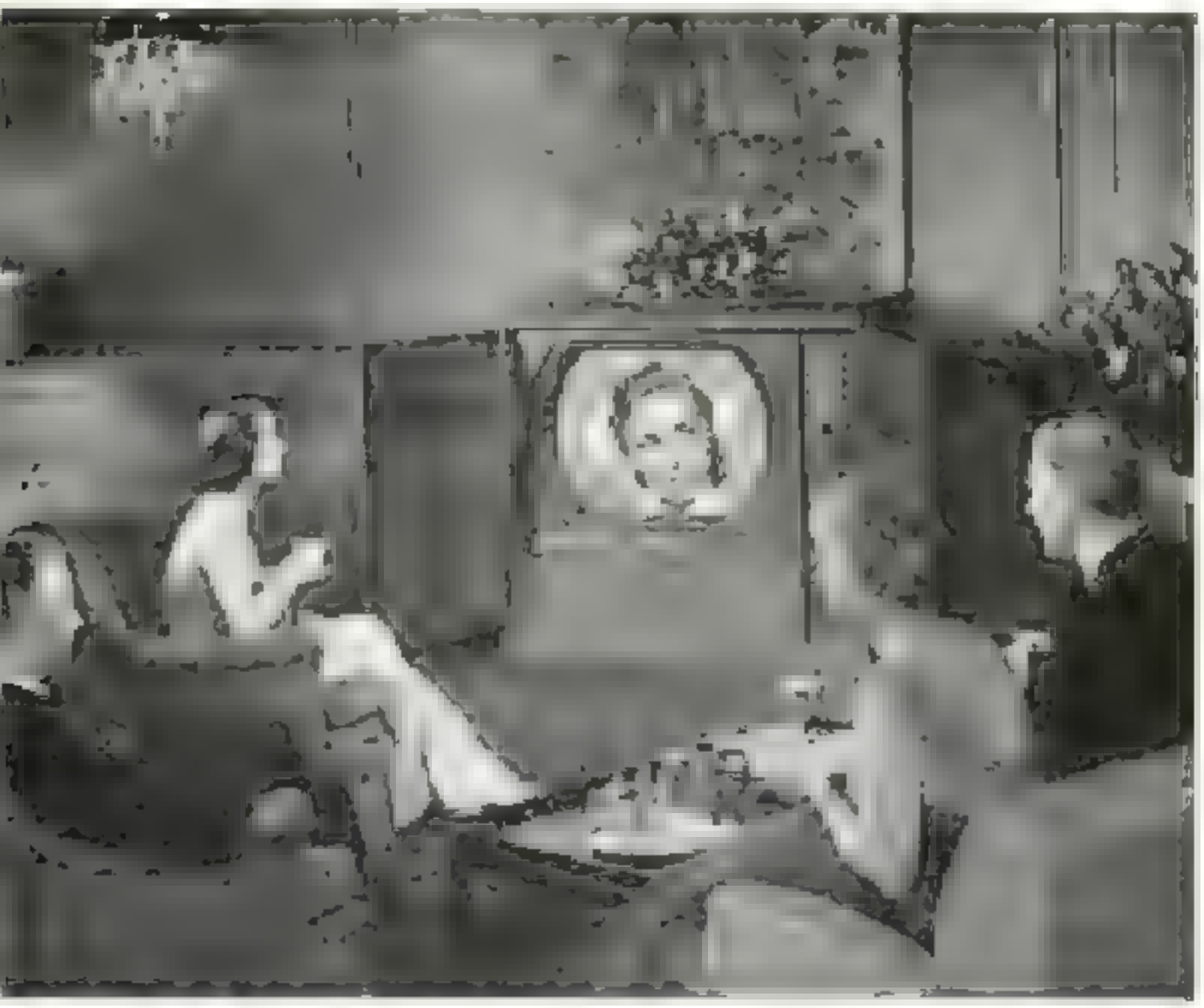
THE WORLD'S LARGEST TELEVISION TUBE

Another DuMont first!



[illegible]

[illegible]

YEAR AS PIONEER

just with the first in television **DUMONT**

[illegible]

Last year the [illegible] built an average of 27,000 cars and trucks every working day.

This [illegible] a miracle of [illegible] the flow of parts and components from the thousands of suppliers the [illegible]

The size of the task may be judged from the part The Budd Company takes in this process and de[illegible]

Every day Budd must produce and deliver more than two hundred and sixty seven [illegible] car loads of automobile, truck and highway transit parts [illegible] tubes, drums [illegible] which merges with countless others on final assembly lines.

The [illegible] automobile truck was the first of many [illegible] developments which have included the steel automobile wheel, the all stainless steel railway passenger car, the railway disc brake, and, in a [illegible] of cases, the [illegible] processes with which to make them. The Budd Company, Philadelphia, Detroit, Gary

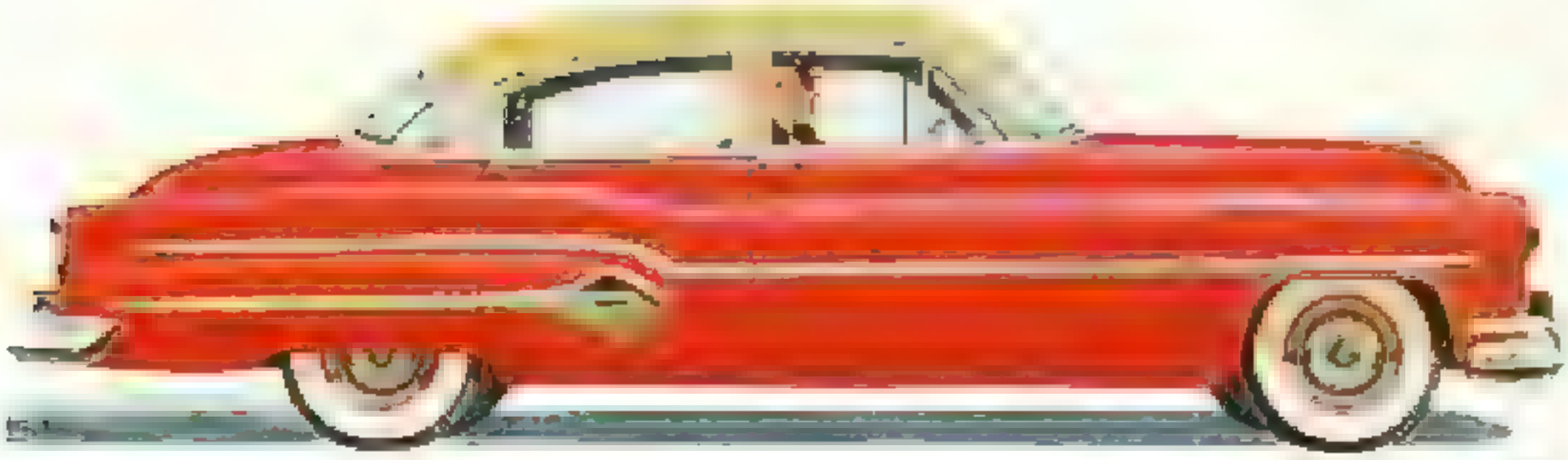
Budd

PIONEERS IN BETTER TRANSPORTATION

NEW!

OLDSMOBILE

"HOLIDAY" SEDAN



A GENERAL MOTORS VALUE

1951 "ROCKET" OLDSMOBILE

"88"

"KEN KITSON"! A great new Oldsmobile! A great new Oldsmobile! The great American car Oldsmobile has ever built "HOLIDAY"—now being launched at Oldsmobile dealers' showrooms everywhere! Four ultra-modern models—the De Luxe Holiday Sedan above, the De Luxe Holiday Coupé, the Holiday Coupé, the De Luxe Convertible Coupé! Four smooth, smooth new Oldsmobile Hydra-Matic* cars. Four great new gas-saving "Rocket" Engines—with a superb new "Rocket Ride"! And they all feature new roominess inside—new elegance and glamour throughout! See your Oldsmobile dealer—meet the new flagship of the "Rocket" fleet. OLDSMOBILE "88" FOR 1951!

New! Power-packed! Value-packed!

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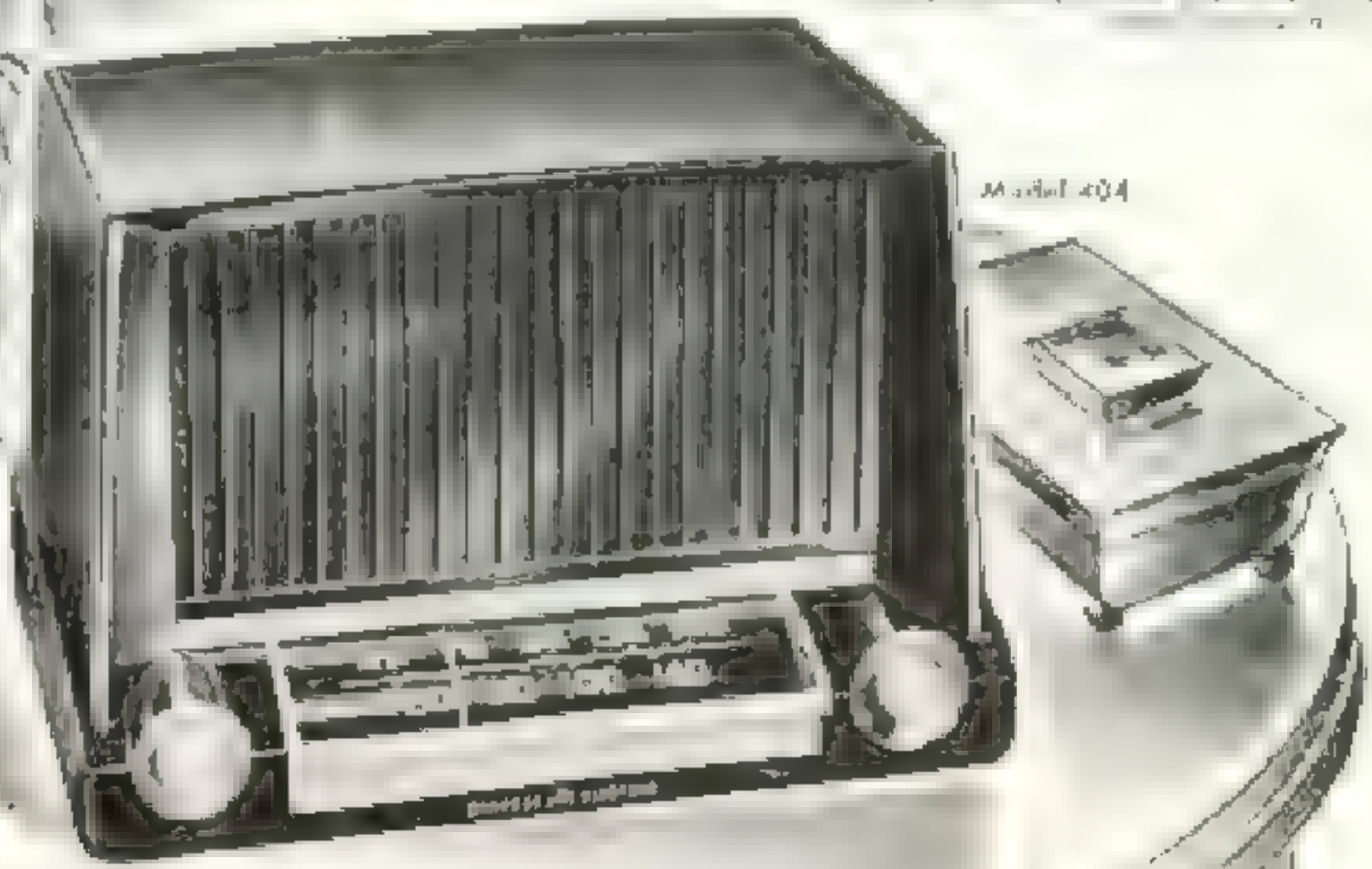
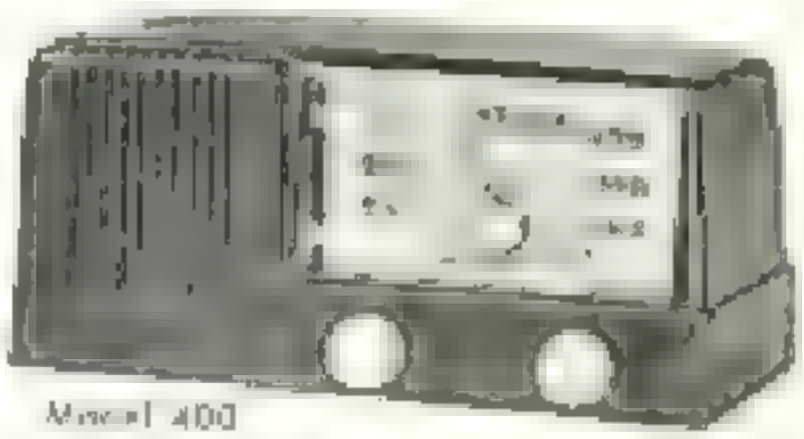
[illegible] **$32.95***



Model 404

Dial Beam Radio—It's Different

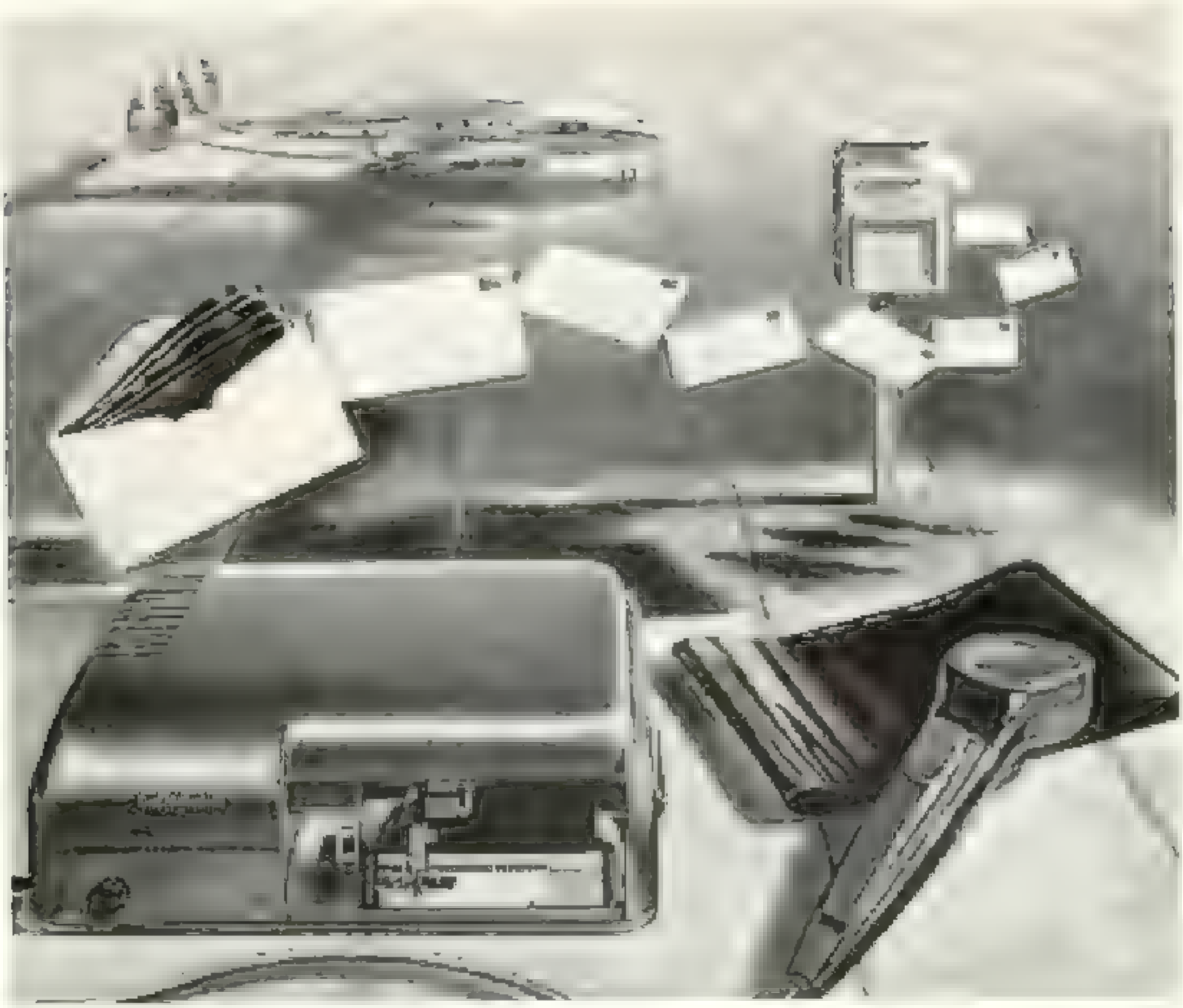
[illegible] **$22.95**



Model 400

You can feel your confidence in . . .

GENERAL ELECTRIC



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All year

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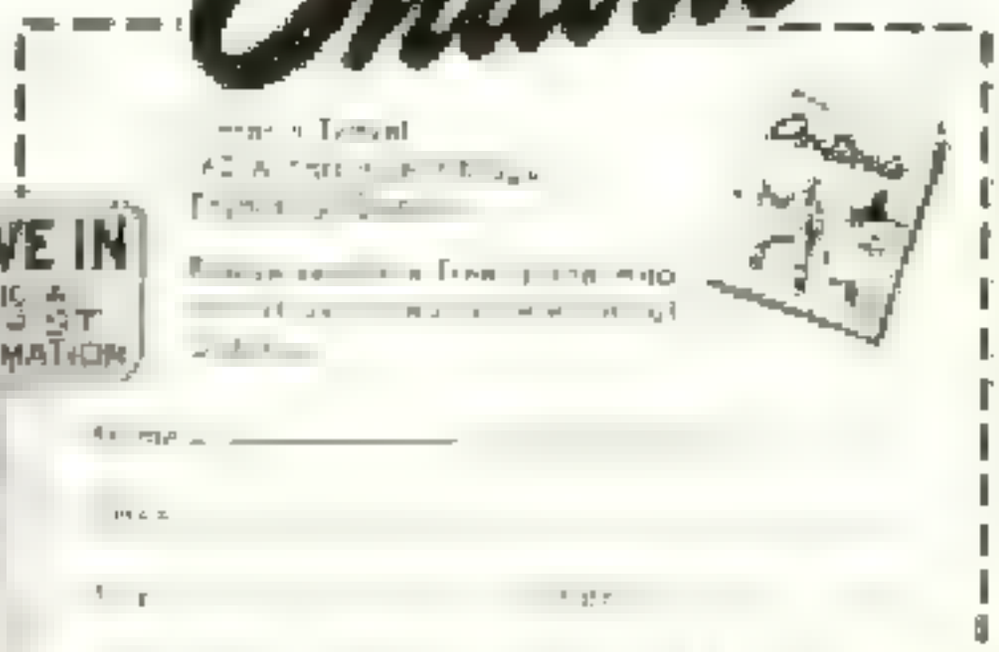
"For fishing thrills . . . go where the fighting big ones await you—Ontario"

". . . and for swimming or sunbathing, there's bracing water and soft sand beaches".

• Watch for the Tourist Information Centre as you cross the border.

Ontario



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Land of roses . . . *without rose-colored glasses!*

INDUSTRIES in the fast-growing Southland don't need rose-tinted glasses to see a "rosy" future!

For here, a gentle climate and a generous Nature offer exceptional opportunities for factories of every kind.

Along the Southern Railway System industries are facing the future with courage and confidence . . . inspired by the unique advantages of this modern industrial "wonderland."

"Look Ahead—Look South!"

Ernest E. Norris

President

LOOK SOUTH LOOK AHEAD

SOUTHERN RAILWAY SYSTEM

The Southern Serves the South

A Musical Dream Come True

ZENITH BRINGS YOU

PITCH AND TEMPO CONTROL

WITH THE SIMPLEST AUTOMATIC RECORD PLAYER EVER INVENTED!

[illegible]

[illegible]

[illegible]

[illegible]

Top Secretary

[illegible] Secretary to Randolph Burgess, President, Marine Midland Corporation, [illegible] pany, [illegible] typing speed [illegible]

and thousands like her prefer the Remington Electri-conomy

Today, essential industries realize that it takes peak of input in the office to achieve peak production in materials handling. That's why top secretaries like Matson Lines' Miss Mendler go for the swift, effortless typing speed of the Electri-conomy—those 20 clear carbons at one typing. The handsome "Executype" for letters of true distinction that will be signed with pride—and that glorious "alive-at-five" feeling because *electricity does the work!*

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THE FIRST NAME IN TYPEWRITERS

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☐ I would like a FREE demonstration of the Electri-conomy—without obligation, of course.

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West to California?...or East to New York?

Cross Scenic Canada

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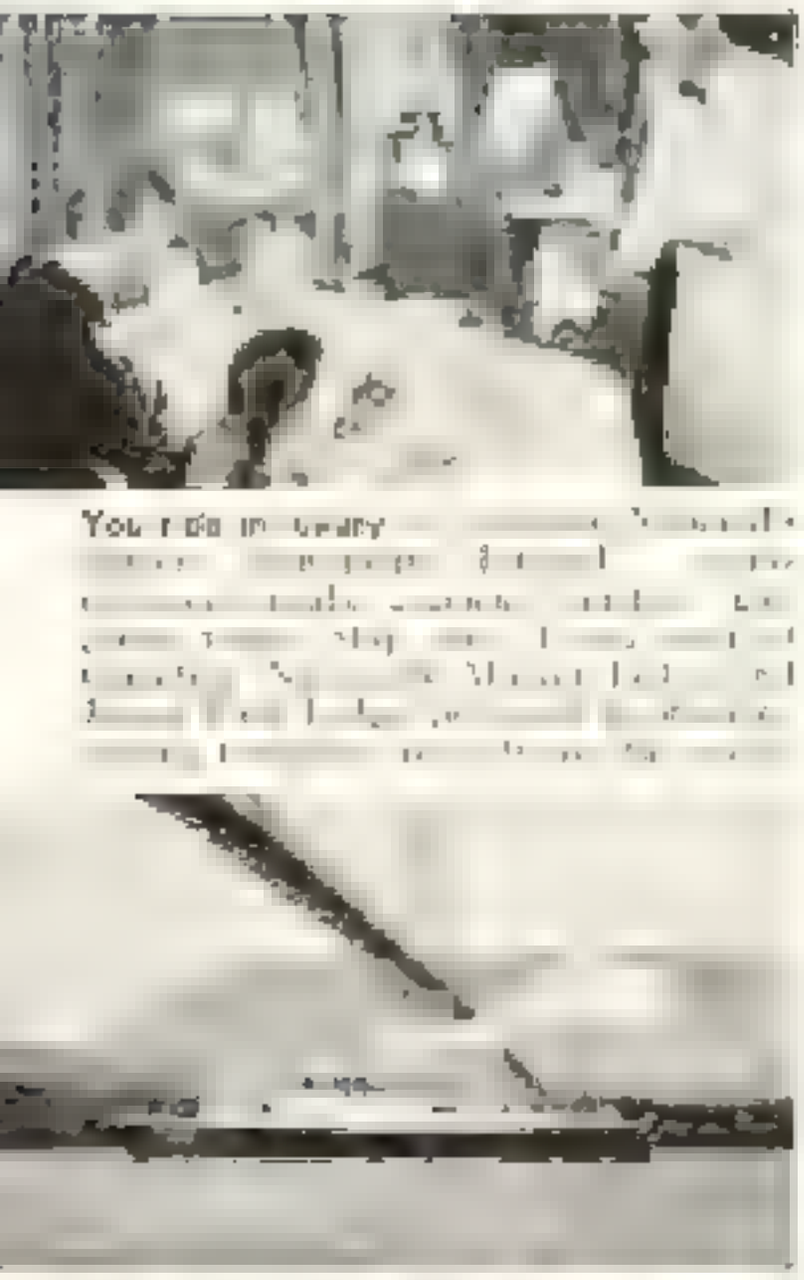

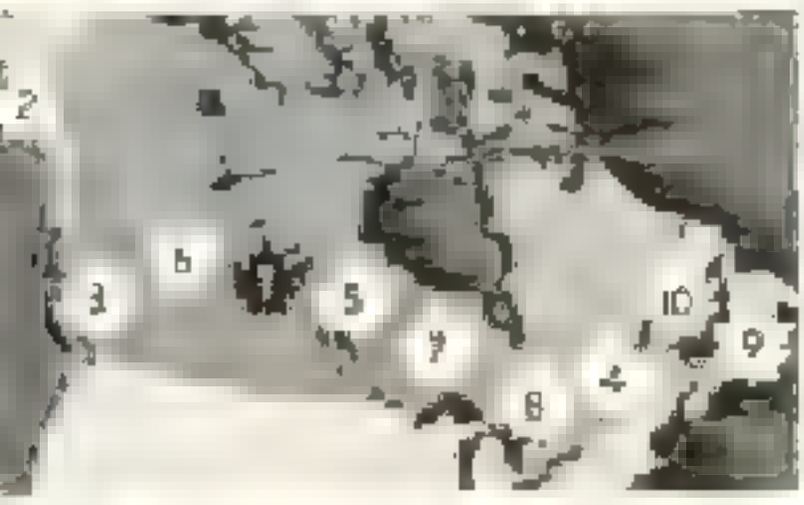

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Across Canada ...ONE OF CANADA'S 10 TOP VACATIONS!

To California or the Pacific Northwest — to New York or anywhere East

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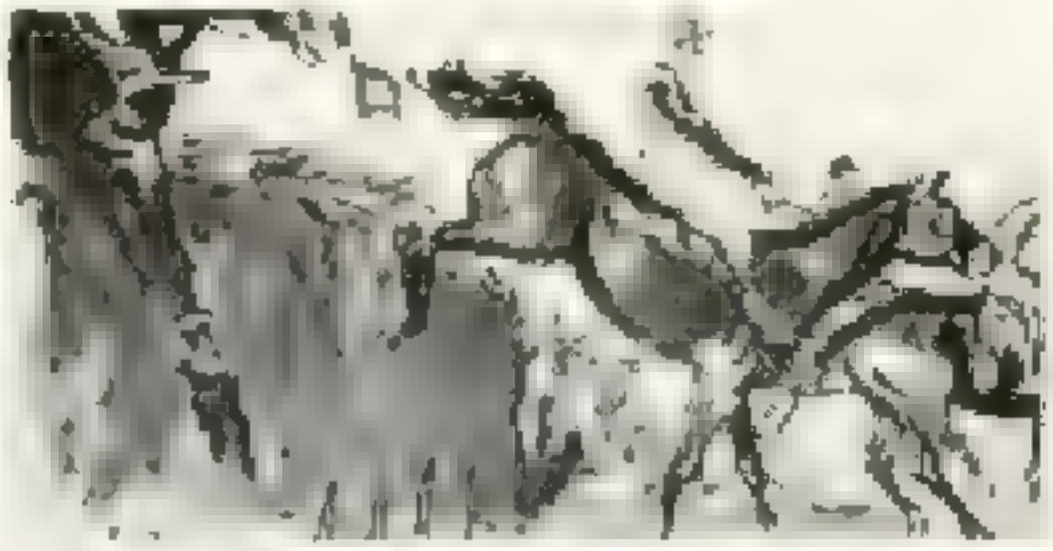
TRADING AS IS PROUDLY OF CANADA

WHENEVER YOU COME . . . WHEREVER YOU GO . . . YOU'LL FIND MORE THAN EVER TO DO AND SEE!



COME FOR ENTERTAINMENT . . . great music, drama, ballet and opera brilliantly performed and superbly presented at more than twenty famous festivals . . . [illegible]

COME FOR THRILLS [illegible] Championships at Wimbledon, yachting at Cowes [illegible] one of these!

Come to Britain

IN FESTIVAL YEAR

That's the Scottish [illegible]

Consider coming in April or May [illegible]

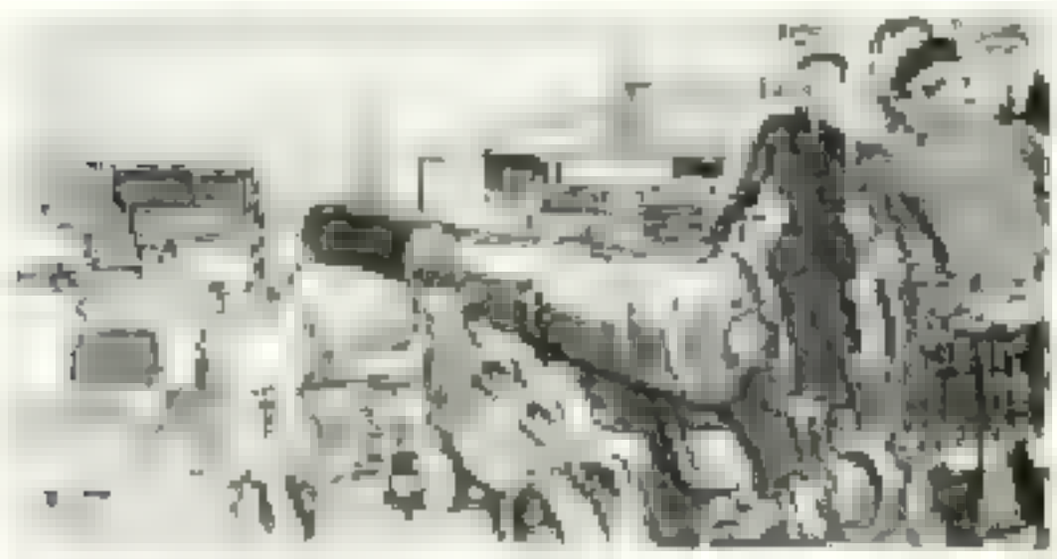
[illegible]
New York 17, N. Y.

● This is *your* year of years to "Come to Britain"! For this year—"Festival Year", with its glittering parade of exhibitions, fairs, and festivals lends added color and excitement to everything you'll see . . . famous sporting events . . . age-old ceremonies . . . glorious pageantry! Whenever you come, in any month of the year, you'll sense a special and gala spirit in the air.

This year, too, you'll find Britain more than ever a joy to roam. Food is plentiful and varied in modern hotels, restaurants and ancient inns. Gasoline is unrationed. Shops are well filled with fine goods . . . textiles, china, leather, silver, antiques . . . at bargain prices. You'll have the time of your life . . . on your *holiday from high prices!*

But don't delay. Start planning now . . . to see all that's best in Britain on parade . . . in Festival Year!

WHEREVER YOU SHOP . . . WHATEVER YOU BUY . . . YOU'LL FIND THAT YOUR DOLLAR GOES FARTHER!



EXPLORE THE PAST [illegible] old legend [illegible] Britain. Liberty's charm is all around you!

ENJOY THE PRESENT, taking time out from [illegible] inns, and truly get to know a friendly people!

SPRING COMES TO BRITAIN EARLY . . . WHY DON'T YOU?

How long does it take to roast a Receivable?

In minutes... a little more than enough ...though no flame touches them ...a few can destroy your vital business papers and put you out of business!

The best protection, the only *sure* protection, is the *proved* protection of a Mosler "A" Label Safe! All Mosler "A" Label Safes are [illegible] by the independent Underwriters' Laboratories, [illegible], to withstand

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1. *[illegible] Insulation Value Door [illegible] superior against heat penetration.*
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Look for this Underwriters' Laboratories Label

The Best in Fire Protection!

Get complete information on the Mosler "A" label safe today. Tomorrow may be too late!

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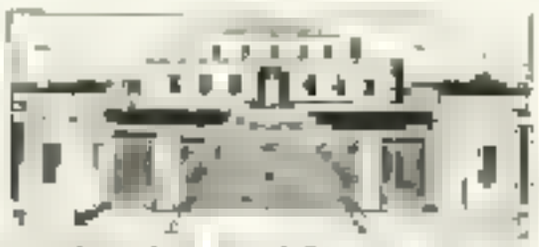

Builders of the [illegible] and Storage Vaults at Fort [illegible], and [illegible] Bank Vault that withstood the Atomic Bomb at Hiroshima and preserved their contents

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WITH

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Standard Package 200 NOTE SHEETS 100 ENVELOPES $1.00
All printed with your name and address

[illegible] 200 envelopes, printed with [illegible] rich blue ink. [illegible]

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THE FINE STATIONERY
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What could be better than going there on The Milwaukee Road's Olympian HIAWATHA? The scenery is glorious, the service superb and accommodations may be chosen to suit your travel budget. Private-room cars with Skytop Lounge, unique and thrifty Touralux sleepers, Luxurest coaches, diner and Tip Top Grill.

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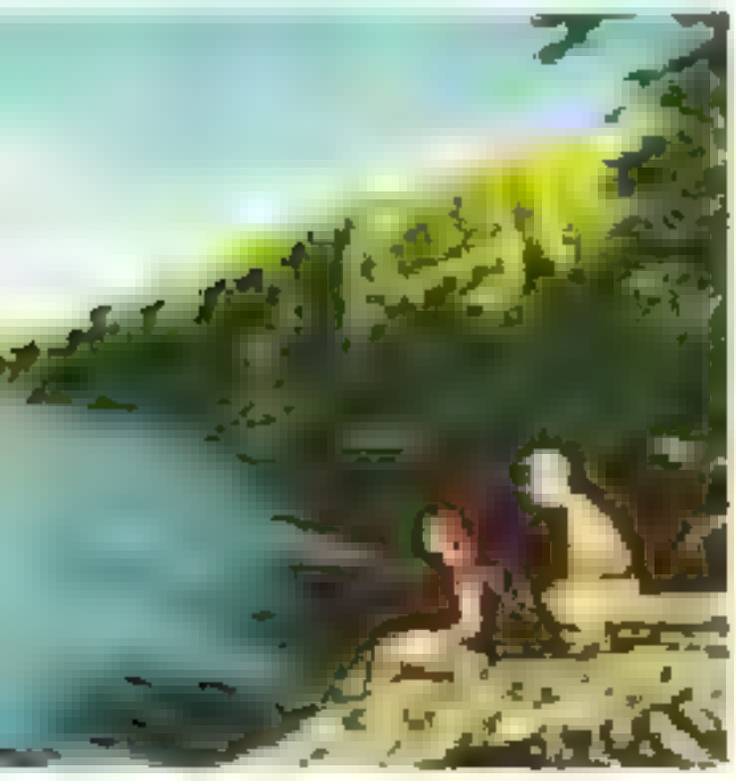


Go adventuring [illegible]

Or sightsee [illegible]

Or get [illegible]

CANADA VACATIONS UNLIMITED

Admiral

CLEAREST PICTURE IN *Television*

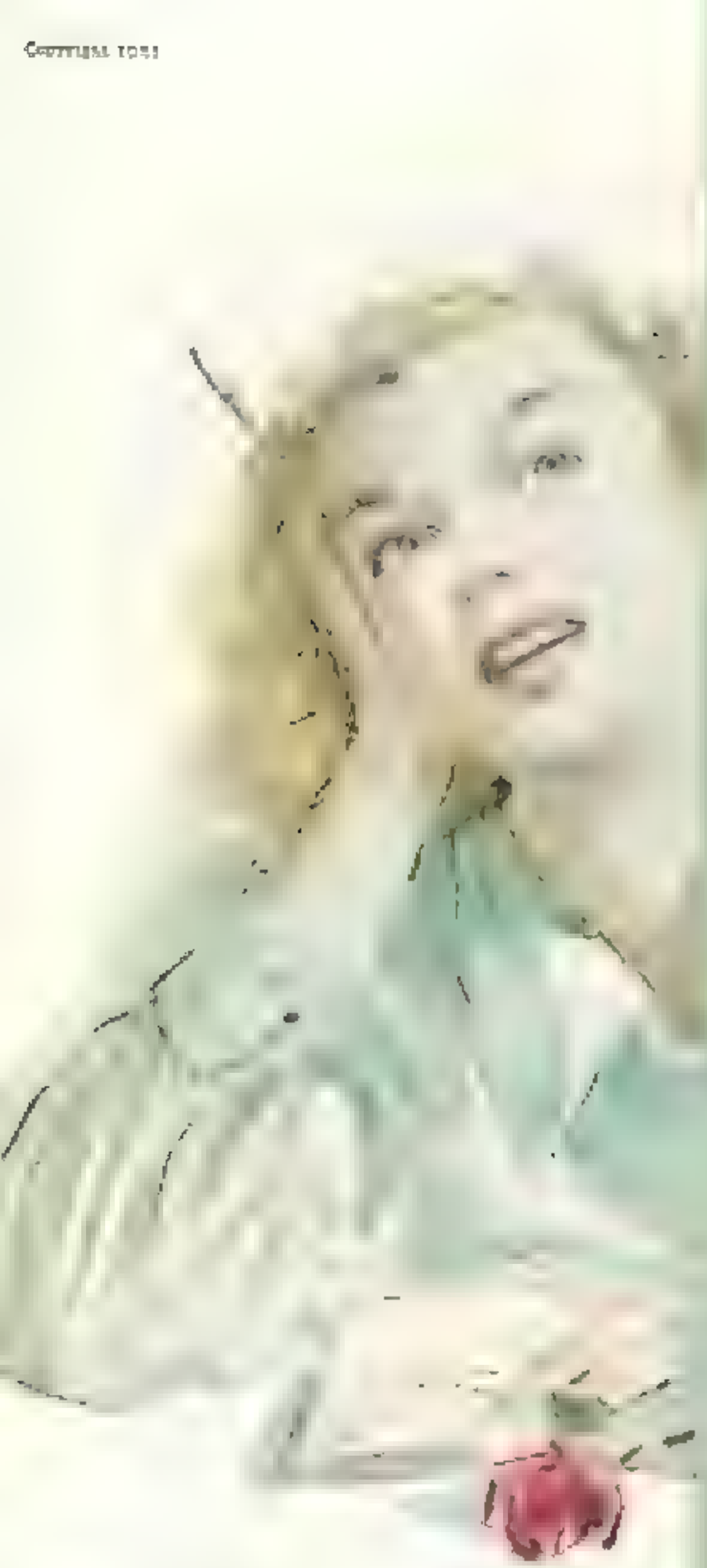
[illegible] NEW [illegible]

[illegible]

Available with 17 [illegible]

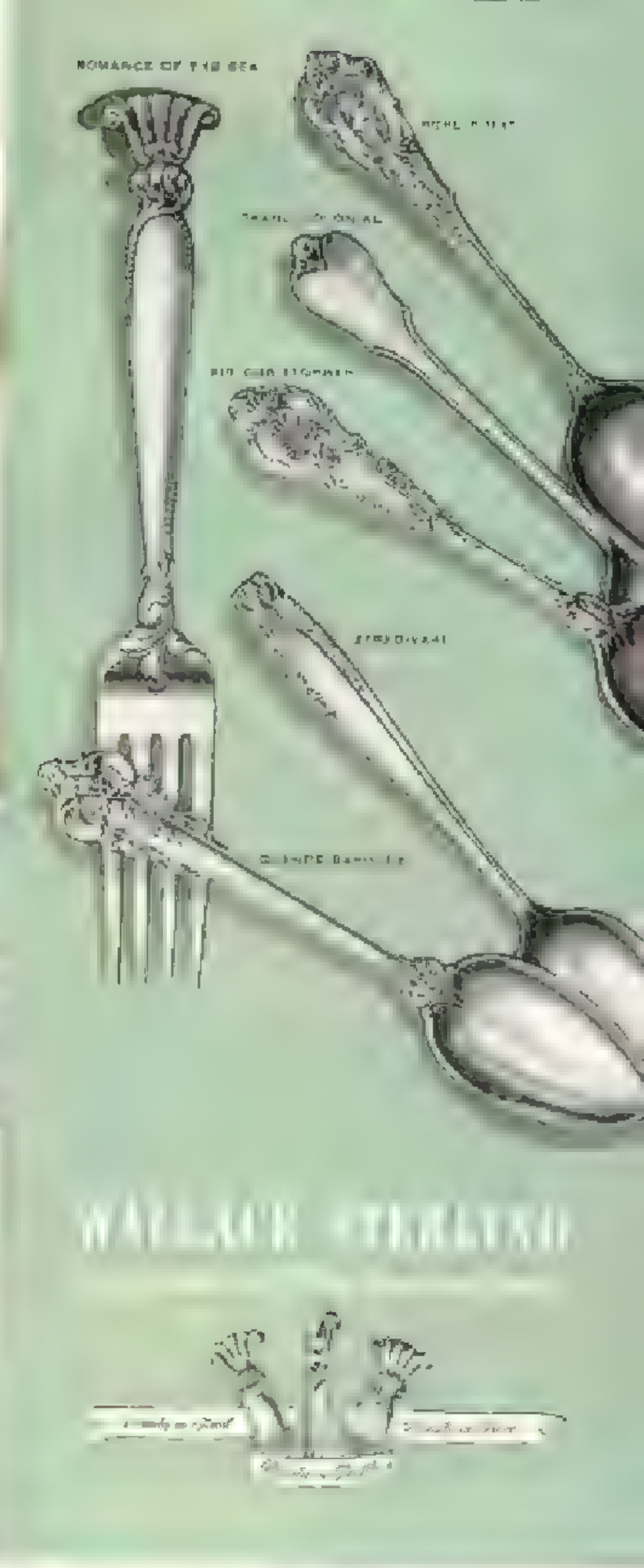
Model 321K18 with *Twenty one inch Television screen*


Dad
Mom
Sis
Bud
WE HAD A WONDERFUL TIME
IN Washington State
WASHINGTON STATE NATURAL RESOURCES COMMISSION
It's COOL, It's GREEN, It's GREAT!



... in all her Day Dreams

... a wedding, a home, all her very own. She's wishful about a table adorn with most precious Wallace Sterling. It will be proudly displayed in sculptured Third Dimension Beauty"—lovingly cherished as her most prized possession.



[illegible] designer, William S. Warren [illegible] sculpture. [illegible] in front, but [illegible] Wallace Sterling [illegible] Beauty." She [illegible] from $[illegible]

REVEL IN DESERT FLOWERS. Be warmed by the same sun that brought about this miracle of bloom. Enjoy her super sunshine than any other resort city. Come soon, do!

Escape from winter... have sun+fun now in warm, dry, sunny Tucson

KNOW WESTERN HOSPITALITY AT ITS BEST. In Tucson you'll find plentiful accommodations of all kinds at sensible rates...smart hotels, colorful guest ranches, ultra-modern motels, apartments and cottages. Accredited ranch and public schools; University of Arizona. Develop a healthy desert tan while you swim in outdoor pools, golf at fine country clubs, ride horseback. Drive down the new paved highway to romantic Old Mexico for the most exciting fishing of your life. Send coupon now to Tucson Sunshine Climate Club, 5004 F Pueblo, Tucson, Arizona, for free booklet ... then come soon!

SEE DEVIL DANCERS in Tucson's festival of the Arts. April 15, 16. Famous Western folklore, music, and art during this annual event. Revel in glorious sunshine

THIS WINTER YOUR PLACE IN THE SUN IS

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- Glacier National Park in Montana
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Enjoy Yourself!

Ride relaxed—free from driving strain, by GREYHOUND

Enjoy Big Savings [illegible]

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Enjoy SuperCoach Comfort [illegible]

Sit back and smile at the weather, traffic [illegible], and overstuffed parking lots—as you relax aboard a luxurious air-conditioned Greyhound SuperCoach! At the wheel, one of the world's best drivers adds to your comfort [illegible] leaving you carefree and comfortable in your reclining easy chair. For the amazingly low price of a Greyhound ticket, this travel luxury and more [illegible] plus the extra convenience of very frequent schedules, plus scenic highway routes, at [illegible] rates.

FREE—Handy Trip-planning Booklet

Mail this coupon to Greyhound Information Center, 105 W. Madison St., Chicago 3, Ill. [illegible] booklet.

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City

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A VACATION TO SUIT YOUR PLEASURE AND PURSE IN THE SCENIC WEST

Rest as you ride . . in money-saving coaches. Go **UNION PACIFIC**

Ocean beaches . . . lakes and streams . . . mountains . . . deserts . . . rivers. There's a wide variety of scenic attractions from which to select. And if you like [illegible] prefer a complete rest, you'll find it in the vast "Land of Scenic West."

A vacation should start with relaxation. You arrive by train rested and refreshed. Save driving [illegible] seeing at your destination, but [illegible] inexpensive.

Ask your [illegible] or Travel Agent to route you by Union Pacific through the West. Swift Streamliners and other fine trains provide [illegible] accommodations, a smooth, safe [illegible] and wonderful [illegible] your mind.

Select the region in which you're interested [illegible] and [illegible] comfort [illegible] a few [illegible] describing [illegible] attractions.

Union Pacific serves: Sun Valley, Idaho • California • Pacific Northwest • Colorado • Yellowstone • Grand Teton • Zion • Bryce • Grand Canyon National Parks • Las Vegas–Hoover Dam • Dude Ranches

UNION PACIFIC RAILROAD

Please send me [illegible] booklets [illegible] and [illegible] as [illegible] below

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CITY _____ STATE _____

[illegible] ☐

I [illegible] and special note [illegible] will be enclosed _____

ROAD OF THE DAILY *Streamliners*

GOOD DENTAL HEALTH

Protect the first teeth

By keeping the child's first teeth clean and free of decay, there is less fear of losing them prematurely and a better chance that permanent teeth will develop normally.

Authorities recommend periodic examinations beginning at age three. Sodium fluoride treatments, which help teeth resist decay, may also be given by your dentist.

Guard against teen-age decay

It is estimated that 95 out of every 100 high school children have some tooth decay. During teen years, teeth seem to be especially susceptible to cavities and eating too many sweets may contribute further to this condition.

Proper diet and regular dental care during these years may help to assure good dental and physical health throughout life.

Eat enough tooth-building foods

A diet rich in vitamins and minerals is one of the most important factors in building and maintaining sound teeth at all ages.

These elements are supplied by milk, meat, eggs, vegetables and fruits, bread and cereals, and fish liver oils. Firm and firm, vigorous chewing of tough, crisp foods helps keep teeth and gums healthy.

Keep the teeth clean

The acids which cause decay are formed in the mouth soon after eating. Thus, to get the full benefit of the toothbrush, it should be used *after meals and especially before retiring.*

The dentist will be glad to advise you about the proper methods of keeping teeth clean.

Help protect the gums

Gum diseases affect about 60 per cent of the adult population. Frequently, such conditions are brought on by deposits of tartar which irritate the gums, and the infection may spread to other parts of the body.

By having the dentist treat infected gums early, it is usually possible to cure them and to prevent the spread of infection.

Visit the dentist regularly

Today, modern dental science has developed new measures to combat decay and has introduced improved methods to help control pain and infection.

Periodic visits to the dentist for cleanings, examinations, and necessary treatment are the best safeguards against serious conditions which may affect the teeth and the mouth.

Metropolitan Life Insurance Company

Please send me a copy of your booklet 31N, "Your Good Teeth."

Name _____

Street _____

City _____ State _____

Jumping jerboa—
how he can see!

THE AFRICAN JERBOA, *Jaculus jaculus*, never has to crane his neck to see what's behind, above, or to the side of him.

His vision is a full, horizon-sweeping 360 degrees. So when he's being chased by a fox, desert hawk, or other enemy, he can keep an eye on his chaser to see how he's doing and look ahead for a hiding hole—without even turning his head.

And when he's hard pressed, the jerboa, which is only five inches tall, can jump fifteen feet in one hop—to get out of trouble's way.

If everybody who drives a car were as well equipped as Jaculus to spot oncoming danger—and to duck it—automobile accidents undoubtedly would be fewer. But even if all of us had eyes in the back of our heads (and cars were as nimble as a jerboa), there'd still be a terrifying list of smash-ups, with traffic what it is today.

Fact is, approximately 1,600,000 persons were injured in auto accidents last year. And never before has it been so important to carry insurance, *and enough of it.*

In nearly every state of the Union and in the provinces of Canada, you can—if you have an accident—lose your driving license, your car license, your car and your savings, and also accumulate a debt to last for years.

That's much too big a risk to take. So why not call your Travelers agent or broker today?

MORAL: INSURE IN

The Travelers

ALL FORMS OF INSURANCE AND SURETY BONDS

The Travelers Insurance Company, The Travelers Indemnity Company, The Travelers Fire Insurance Company, The Charter Oak Fire Insurance Company, Hartford 15, Connecticut. Serving the insurance public in the United States since 1864 and in Canada since 1865.

Sheaffer's

NOW IT'S

VALIANT
Pen, $12.50
Stratowriter ballpoint, $10.00
Pencil, $5.00
One of the popular models in the new TV "White Dot" range. Other Sheaffer's from $3.75.

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① Brilliant screen projection

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This is an "age of discovery" for thousands of new color fans who are just finding what they can do with Kodachrome Film in a miniature camera. Any miniature with f/6.3 lens or better gets the pictures. Your "first attempt" will show you how easy it is to take now gorgeous the color

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Superb color camera, only $29.95

Let your Kodak dealer show you the Kodak Pony 828 Camera . . . its fine f/4.5 Ektanar lens for rich, brilliant color . . . 1/200-second flash shutter with simplified exposure settings. With "1 roll 828" and a Kodachrome Processing [illegible] (or [illegible] up) [illegible] Kodachrome photographs. Or [illegible] processing [illegible] and screen combined, [illegible] the new Kodaslide Table Viewer 4X, $47.50

Prices include Federal Tax where applicable

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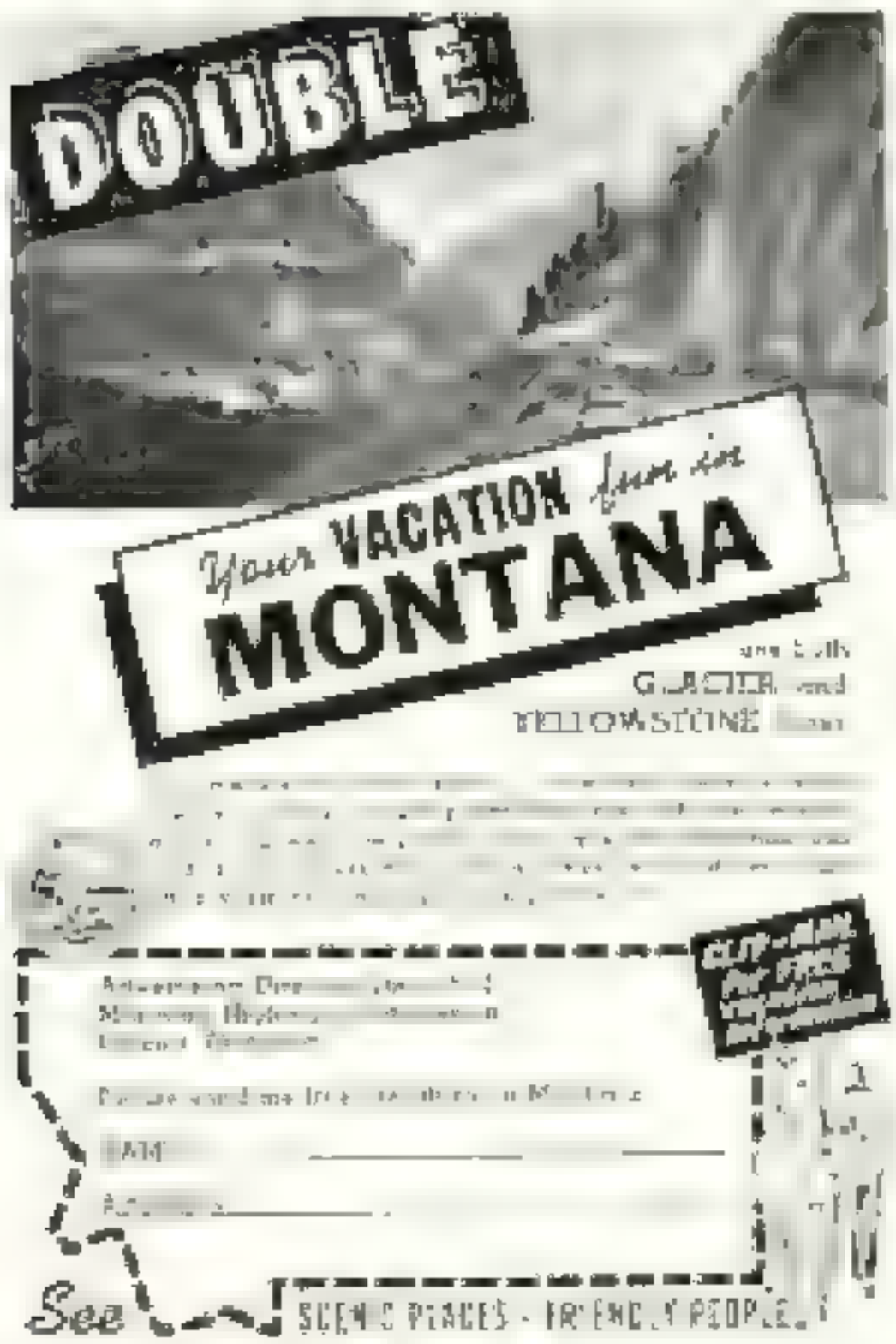

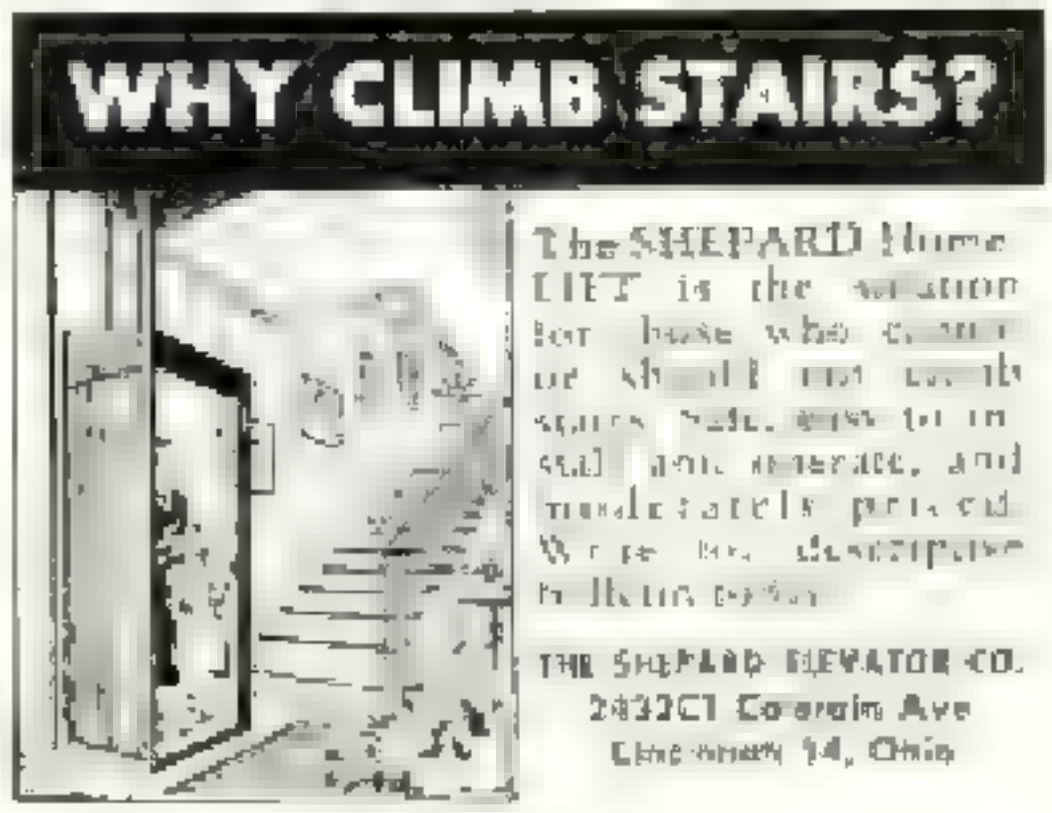


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IN THE

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To the Secretary, National Geographic Society,
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1-51

Enduring Distinction Characterizes NEWLY STYLED GLOBE-WERNICKE Bookcases!

1-section Universal with sliding glass doors; book sections in three heights.

Now G/W proudly offers new bookcases of distinguished modern styling, in the traditional beauty of 70 years of fine furniture design and craftsmanship.

Sectional and solid-end models blend harmoniously into the chosen scheme of furnishings for the modern home, executive office or institution.

In some models smooth-sliding glass doors afford full-vision space for trophies, keepsakes, collections as well as for books, pamphlets and cased editions or sets.

Note also the new solid-end Ardmore styles, with hinged glass doors or open fronts, in the finest "custom-built" character.

In all G/W bookcases skilled hand-rubbed finishing brings out the rich warmth and beauty of grains and colorings of selected woods — genuine Walnut and Mahogany, Plain and Quartered Oak, and simulated Walnut and Mahogany.

See them at leading furniture and office equipment stores. Illustrated literature and your dealer's name, promptly on request.

1-section Universal, modern top, closed base, receding doors. Also in conventional top, with modern or leg base.

Ardmore solid-end, hinged doors give extra protection to prized editions. 1-inch shelf spacing.

Economy style sectional, three sizes of book sections, receding doors. Handsome value — moderate price.

Ardmore solid-end custom-style, open front, in the fine furniture tradition, 1-inch shelf adjustment.

GLOBE-WERNICKE
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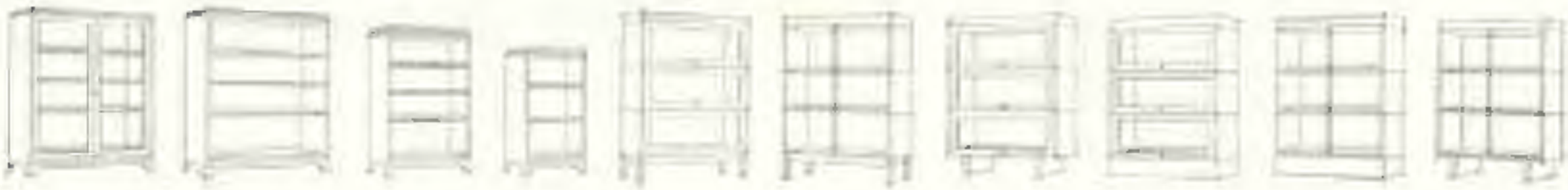

If we were in Your Shoes

There's a very simple policy behind the telephone business.

We try to run it for you as we would like you to run it for us if we were in your shoes.

We'd like you to give us good, courteous telephone service at a fair price. We'd like you to keep improving it and giving us more of it.

We'd like you to run the business so that it would be a good place for people to work and a good place for people to invest their money. We'd like it to be a progressive and successful business.

We would like you to run the business so that it would be a good and helpful citizen in everything that concerns the community and the nation, especially in times of national defense.

That's the way we'd like you to do it for us. And that's the way we're constantly trying to do it for you.

The best and the most telephone service in the world at the lowest possible cost . . .

Bell Telephone System